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IN
A COURSE OF LECTURES,
BY
JO. BAPTIST BURSERIUS,
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TRANSLATED FROM THE LATIN,
Br WILLIAM CULLEN BROWN.

IN FIVE VOLUMES.

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EDINBURGH, }
July 22. 1801. }

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CHAPTER IX.

OF SMALL-POX *.

158. **I**T was formerly keenly contested, whether small-pox were known to Hippocrates, Galen, and other ancient physicians, some affirming that they were, and others denying it; it would therefore be superfluous at present to waste time in such a controversy †. But most authors consider it as being very probable that small-pox were not clearly described before the Arabians, to whom although we have reason to suppose they were known in the year 572, or at least 622 ‡, yet the more general opinion is, that having arisen first in Egypt and the interior parts of Arabia, they were introduced by the Saracens into Spain and other parts of Europe, not before the end of the eleventh, and beginning of the twelfth century ||. Since this time the disease has become so universal, that it is considered not only as one which every person must undergo, at least once during life,—unless he may have been affected with it in the uterus,—but is in fact complaint with the nature of which nobody is unacquainted.

* Synonyms. The *Variolæ Arabum* of Mercurialis, *De Morb. Pueror.* c. 2. : Of Boerhaave, *De Cogn. et Cur. Morb.* § 1371. : Of Juncker, Tab. 76. ; and of almost all the moderns. The *Febris Variolosa* of Hoffman, *De Febrib.* sect. i. c. vii. : Of Vogel, *Gen. Morb.* gen. xxxvi. The *Variola* of Sauvages, *Gen. Morb.* gen. 92. : Of Linnæus, gen. 3. : Of Cullen, gen. xxvi. : The *Petite Vérole* of the French. The *Vajuolo* of the Italians.

† De Haën, *Variol. Antiquitat.* and Werlhof. *Disquisit. Medic. et Philolog. de Variol. et Anthrac.* and, lastly, Gruner. *Morb. Antiq.* c. i. *Variol. earumq. insit.* ‡ Mead. *De Variol. et Morb.* c. 1. *De Orig. Var.* Hom. *Princ. Med.* P. 4. sect. vii. || Mead. l. c.

159. Small-pox are an exanthematic febrile contagious disease, of the acute kind, always primary, attended with an eruption of small red pustules, raised on the surface, generally phlegmonic, like pimples, which break out first on the face, neck, and hairy scalp, and after having been diffused to the breast, shoulders, hands, and the rest of the body, and gradually increasing nearly to the size of a small pea, (as commonly happens), suppurate in a few days, and shortly terminate in crusts, which fall off, leaving behind them red marks, that are gradually obliterated, and sometimes pits, or small cicatrices. I call the complaint *febrile*, because it is generally accompanied with fever. I say *generally*, for sometimes it is so mild and benign, that it is neither preceded nor accompanied with any fever, or if there be any conjoined with it, it is so slight as to be scarcely sensible : Nor is it perpetually present, but comes and goes *, ex-

cepting in the more severe case of the complaint, attended with a certain degree of malignity, in which a fever more or less acute and constant accompanies it. I therefore differ in opinion from those who refer small-pox to the class of fevers, and particularly to the *contagious synochæ* *.

* Sydenh. *Oper.* sect. 3. c. 2. Huxham's *Essays on the Small-pox.* † Marcellus Donatus once saw small-pox unattended with fever. Ingrassias observed them in a slight degree, and few in number, without fever, as we are informed by Marefcott, who also mentions that he cured two children labouring under small-pox unaccompanied with fever (Marefcot. *de Variol.* p. 20.). Fantonus also saw small-pox, or variolous pustules, which broke out, and came to maturation and exsiccation, without any manifest fever (*Dissert. de Antiq. et Prog. Feb. Mil.* p. 70.). Drelincourt found them prevailing so both sporadically and epidemically, and quotes similar instances from Forest, Ferdinand, Rhodius, and others (*Diss. de Var. et Morb.*). Others record that this happens in the mildest small-pox, both spontaneous and proceeding from inoculation. It is a very well known fact, that the variolous matter is introduced into the skin of those who had already experienced the small-pox; from whence pustules arise, which in appearance, duration, and in the manner in which the inflammation, exsiccation, and suppuration take place, completely resemble small-pox. But, as the internal parts of the system are not affected by it, perhaps on account of the disposition to receive the infection no longer existing, they are neither attended with fever, preceded, nor followed by it. This frequently happens to women who attend variolous children, who sit by them, or carry them in their naked arms, or apply their face to that of the patient, especially if they have a very fine skin. But it is very frequently found to occur in inoculated small-pox. For the pus which is introduced very frequently affects the skin only, raising pustules upon it with-

out occasioning any fever, a fact which is known to every body, and shall be spoken of in its proper place. Hux. *On Small-pox*.

160. I have moreover set down the disease as being contagious (159.), because sound bodies are affected with it by approaching one who has the complaint; by contact; by handling the cloaths, linens, and other things which the infected use; by breathing the air pregnant with the variolous halitus; by taking it in along with the saliva; by imbibing it through the skin; by inoculation; by carelessly employing a lancet with which a variolous patient had been bled, and which had not been sufficiently wiped, to open a vein in another person *. Small-pox, therefore, do not seem to arise from errors in diet, nor from the changes of the seasons and air †, but from a peculiar poison, or miasma, which is extremely subtil and volatile, and calculated to occasion inflammation and irritation, and which, when once produced or evolved, continues long in full force, probably floating in the air, or adhering to bodies, and thus gradually entering into healthy people, and infecting them, as it were, secretly ‡. It is probable that this happens when the small-pox prevail epidemically, attacking even such as have had no communication with variolous patients.

* Hom. *Princ. Med.* P. 4. sect. vii. Störck, *Med. Pract.* P. 1. p. 55. Meza, *Comp. Med. Pract.* c. xxi. § 211.

† Casimir Medicus entertains an opposite opinion, for he considers small-pox as a spontaneous disease; nor does he sup-

pose them to proceed from a secret cause, although they be propagated by contagion. He compares them with the itch, which, though arising spontaneously from a vitiated state of the fluids, is introduced into sound bodies by contagion, and he contends that the power of the variolous contagion is very inconsiderable. He ascribes the epidemic small-pox, like other epidemic diseases, to the changes of the seasons. (*Vid. Comment. de Reb. in Scient. Nat. et Med. Gest. suppl. 2. ad decad. 2. p. 225.*). But the contagion of the itch is contracted by contact alone, not by inhaling the infected air, nor by remaining among people affected with it, nor by being near them, all which shews a wide difference between the contagions, and that the power of the variolous contagion is not inconsiderable, but almost pestilential. Nor am I disposed to admit that all epidemic diseases are to be derived from the changes of the seasons only, as not a few of them frequently prevail during opposite states of the air, and as there is a great difference between truly epidemic and stationary diseases, or such as proceed from variations of the seasons and of the state of the air. The opinion of Casimir Medicus is adopted by very celebrated authors, who seem to renew the old opinion, according to which small-pox are derived from the blood of the umbilical cord not being sufficiently expressed. Time alone must determine on the success of their attempts in preventing small-pox, as they tell us they have done; I should beg leave, however, to ask the sticklers for their prophylactic method, why, as the cause of the complaint is co-eval with mankind, Europe and America remained so many ages free from small-pox? Why the Chinese, from whom this prophylactic method is said to have been transmitted to us, have not escaped the variolous contagion, with which they are very frequently and most severely affected? Why in modern times, since midwifery has been every where so much improved, that the umbilical chord is never tied and cut off, without the blood being completely expressed, we are still subject to small-pox? Which Marefcott, public teacher of Medicine at Bologna,

having observed to have been universally practised there for more than sixty years by the most experienced obstetrical practitioners, without either the number of variolous patients, or the destructive tendency of the disease, being diminished ;—in his treatise on small-pox he has shewn the futility of the boasted Chinese method of preserving people against being attacked with the complaint. Lately, in the month of December 1783, Jo. Babbist Frambaglia expressed all the blood from the umbilical cord of a newly-born infant with such care, that it remained quite empty between the ligature and the cord. On the following spring, he was informed by the nurse, that the infant had had small-pox, though few in number, and of the distinct kind, unaccompanied with fever. In July the small-pox, of a very malignant kind, began to prevail epidemically. Towards the end of August a daughter of the nurse's was attacked with distinct small-pox, during the exsiccation of which, the sucking child already mentioned was attacked with minute, clear, confluent small-pox, which proved fatal on the 23d of September, in the year 1784. This ingenious physician lamented that his first experiment was so unsuccessful, as not even to render mild a disease which he had hoped to prevent intirely. ‡ Hom. l. c. Tissot, *Epist. Var. Argum. ad Haller*, p. 6. Ludwig, *Adversar. Med. Pract.* P. 3. V. i. p. 473.

161. Although it must be confessed, that the seeds of the disease (160.) are not only contained in the air, and always floating in it,—as it is very evident, from what I have already shewn, that they adhere to rags, linens, cloaths, and other things, and may lurk in them a long time in full force, until they are extricated by some cause, and being taken into sound bodies by the halitus or contact, occasion the contagion :—yet sometimes the small-pox prevail only sporadically, nay, at times attack a single individual, without any evident cause of

the contagion being found. Whether or not does the poison, after lurking in the system, at length become manifest merely by the intervention of some exciting cause? Or did it already exist in the air, but could not be communicated on account of the body not having been prepared for its reception? Perhaps it requires a particular state of the weather and air to become active, or acquire that noxious power by which it appears and is propagated rather at one time than another; or that our bodies should be in a particular condition to be acted upon by the power of the miasma. Hence we may easily understand, why, according to the different conditions of the weather, and of the bodies affected, the disease at one time prevails epidemically, at another sporadically. For the variolous miasma, without such a disposition, cannot engender the disease, not even when inserted by inoculation, as repeated trials have shewn.

162. But, according as the diathesis of the body and fluids, necessary for the reception and evolution of the virus (161.), comes on sooner or later in life, people fall into small-pox either in infancy, in boyhood, in puberty, or manhood. Nay, even the fœtus itself is not secure against this taint; as it is undeniable that children have been born with the small-pox on their skin, or retaining the vestiges of them, and that, too, notwithstanding their mothers had not laboured

under the complaint; though this is certainly of very rare occurrence *. It therefore seems, that the miasma has sometimes passed into them without injuring the mother, or that she has been affected at the same time: Whence we learn, that pregnant women ought to be carefully kept from such as have the complaint, to prevent themselves or the foetus from being affected with the contagion. Nor can a person, even when grown up, unless he had experienced the complaint already in the uterus, ensure himself against an attack of small-pox; for not only persons considerably advanced in life, and old people, but even people in a state of decrepitude, and almost superannuated, have died of this disease.

* Ludwig (*Adversar. Med. Pract.* P. 3. vol. i. p. 496.) says: "A mother having recovered from small-pox, a month afterwards had an abortive delivery of a child, which shewed on its body the remains of the variolous pits." Fouquet also (*De la Pet. Vêrol.* T. 1. p. 299.) mentions, "that a pregnant woman having been attacked with small-pox, and at length recovering, was delivered of a child upon whose skin evident symptoms of small-pox were seen." Dr Wright (*Philos. Transf.* vol. 1. 1767, P. 2. n. 2.) saw an infant born a fortnight after its mother had laboured under distinct small-pox, which was covered from head to foot with distinct and well-filled pustules, such as they are generally found to be on the eighth or ninth day in the benign small-pox. The child's mother was a black, born in the island of Jamaica, and the child itself died three days after. In the Commentaries of the Society of Sciences of Haarlaem, T. 12. there is an account of small-pox happening before birth, communicated to the Society by Joshua Van Iperen. It is thus recorded by the authors of the Leipzig Transac-

tions (*De Reb. in Scien. Nat. et Med. gest. v. xviii. p. 596.*): “The wife of a celebrated writer, in a state of pregnancy, after attending two children affected with small-pox, without catching the complaint, was brought to bed of a healthy child, in whom, however, traces of small-pox were evidently seen. A little before delivery, when the fœtus undoubtedly laboured under the complaint, she had felt a degree of anxiety.” Orteschi (*Méd. Journ. vol. iii.*) not only quotes (*Diar. Med. Bullion. an 1763,*) the history of a child born with small-pox upon the face, neck, and shoulders, but also mentions that the same thing had happened to his own brother, on whose body were found many distinct small-pox, most of them full of pus, and about the size of a pea. His mother, in the last stage of pregnancy, was brought to bed of another son, in like manner affected with small-pox. Rosen (*Malad. des Enfants, c. xii. p. 5. 18.*) makes mention of another child born with variolous cicatrices and crusts. His mother, during the last days of gestation, constantly attended another son affected with small-pox. Six years after the rest of her sons were attacked with small-pox, excepting the youngest, who, having had the complaint in the uterus, remained quite free of it. Feburi subjoins to this passage, that he had seen a child born whose body was covered all over with variolous pustules, which exactly went through their ordinary stages. His mother had had the complaint a long time before. Murray (*Hist. insit. Variolar. P. i.*) likewise makes mention of a child born with small-pox, whose mother, before delivery, had attended another child labouring under the complaint. Frid. Christ. Höller (*Observ. Med. Chirurg. obs. ix.*) saw a still-born child, covered with true variolous pustules, whose mother never had experienced the complaint. Meade also (*De Variol. c. iv.*) mentions a similar instance. From these facts a convincing proof is given, that the fœtus is sometimes affected with small-pox, although surrounded with a fluid, by which Cotunnus thought it was defended against the contagion, on the mother becoming affected. Azoguidi (*Lettera sopra il Vajuelo, p. 6.*) makes some remarks so applicable to the subject, that I consider them as well deser-

ving to be transcribed here. “A certain Neapolitan physician has endeavoured to maintain that the foetus of pregnant women cannot be affected with small-pox. But the observations of several men, eminent for their medical and anatomical skill, such as Meade, Hildanus, and others, which he rejected, perhaps after giving them too cursory an examination, give us reason to suspect the truth of his opinion, which may be moreover combated, not only by what Marchesini had an opportunity of seeing, but also by what was observed, in the year 1773, if I mistake not, at Montpellier, where an infant was born which at the moment of birth appeared covered with variolous pustules, without the mother having been once affected with the complaint during the whole period of gestation.”

163. They also entertain an erroneous opinion who think, that, after once having the genuine small-pox, the disposition of the body to receive them is destroyed. For it appears from undoubted facts, and the investigations of medical men of unquestionable authority, that not a few, after experiencing the complaint in the natural way, or by inoculation, have afterwards been affected a second, and even a third time. Hence it is evident, that that disposition is not always destroyed after once having had the disease, or, at least, that it may be sometimes excited again. And, first, that no doubt of the fact may remain, I may observe, that Diemerbroeck found several, who had been very completely affected with the small-pox, relapse into them twice or thrice within the space of six months *. But, lest it be supposed that in these cases the disease struck out

again after still continuing to lurk in the system, rather than that it returned anew, let us attend to the facts which others have observed, and which leave no room for doubt. Marescott makes mention of two boys, one of whom had the disease twice, the other thrice †. And Van Doeveren confirms the fact with regard to small-pox sometimes returning twice, and even thrice in the same person, both by his own experience, and what he had learnt from others. He mentions, in particular, the instance of his own wife, in whom the complaint took place twice in the course of nine years, referring to the testimony of Camper, Gummer, Brill, and Swyghuizen, who were eye-witnesses of the fact. He likewise records the case ‡ of a boy, who in the year 1754 had been treated for actual small-pox by Eding, and fell into them again in 1759. Lastly, he adduces a case communicated to him by Swyghuizen, who, until then, had resolutely contended against the small-pox ever returning, and which convinced him so completely of his error, that he no longer entertained a doubt of the fact. The same thing happened to a boy a month after he had had the complaint, and to two girls who had had small-pox in the year 1744, and were again attacked with them in 1764, as we are informed by Servans Van de Cupello ||. Dryfhout § makes mention of a woman, who, in the year 1755, contracted small-pox by inoculation, and had a se-

cond attack in 1764. Likewise Aaskow (*Collect. Soc. Med. Haun.* ¶), who had disbelieved the observations of other authors on the subject, relates his having observed the return of the complaint. Meza and Buckwald, also **, attended a woman affected with small-pox, whom the latter had formerly cured of the same complaint. Lastly, Rosen affirms, that the fact appears indisputable to him from an account, subscribed by two very respectable physicians, of a person being attacked with them, after having already had the complaint by inoculation ††.

* *De Variol. et Morbil. Labor. Histor. Hist. i. p. 346. et Hist. 8.* † *De Variol. p. 128.* ‡ *De Variol. ver. eund. agr. aggregis, V. T. xii. Com. Soc. Scient. Harlem. ad an. 1770, itemq. Com. Lips. V. xviii. P. 4. p. 586.* || *Com. Soc. Scient. Harlem. T. viii. P. 2. p. 209. to 216.* § *Ibid. p. 260.* ¶ *Vol. ii. p. 91.* ** *Comp. Med. Pract. fasc. i. c. xxi. § 210.* †† *Malad. des Enfants, p. 250.*

164. But, for the sake of brevity, passing over the numerous testimonies of foreigners, I shall only touch upon a few of those of the Italian physicians, that I may not seem to lose sight of such as are afforded by our own writers. It is not an uncommon thing in Naples, as we are informed by Sarcon * and Mosca †, for the same person to be attacked twice or thrice with small-pox, and of the confluent kind. In Florence the same observation holds. Targioni ‡, in the year 1775, saw a woman twice attacked with small-pox in the natural way; and on the following

year he published another account of the return of small-pox. Dom. Juvanelli attended three sisters affected with small-pox at the same time, who on a former occasion || had laboured under the genuine complaint, as it was acknowledged to be by the physicians who attended them. In like manner, Lilius, in order to establish the fact §, published two complete histories of the return of small-pox in the year 1777. I find nearly the same opinion entertained by the ingenious Azzoguidi ¶, professor of medicine at Bologna, who, not contented with having mentioned two instances of the return of the complaint, adduces the case of an old woman, who, as we are informed by Borelli **, at the age of 118 died of the eighth attack of small-pox. Lastly, to crown the whole, he mentions the case of Lewis XV. who, after experiencing the complaint at the age of fourteen, was afterwards attacked with it at sixty-four years of age. I might confirm the fact by the published observations of Michael Girard, then residing in Padua ††, as well as by other testimonies, were I not restrained by a great controversy which shortly after arose concerning them ‡‡.

* *Istor. de' Mali Osservati in Napoli*, P. I. p. 58. † *Dissert. 2. sull' aria*, p. 106. ‡ *Avis. sopra la Salut. Uman.* 1775, N. 17. || *Avis. sopra la Salut. Uman.* an 1776, N. 9. p. 71. N. 10. p. 79. § *Avis. Suddett.* an 1777, p. 167. et 1778, N. 36. p. 281. ¶ *Lettera sopra il Vajuolo ec.* p. 7. ** Cent. 3. obs. 10. †† *Ritorno del Vajuolo, &c.* 1776. ‡‡ *Giornale di Medic. di P. Orteschi*, T. iv.

165. It is a certain fact, that small-pox, like

other diseases, during the prevalence of the same epidemic, and in the same family, varies in different respects, and in severity of the symptoms. For, as will afterwards appear, there are many varieties of the complaint, taken from the number, form, and heat of the pustules, or from their progress, danger, and malignity. This also appears in the small-pox communicated by inoculation, which, although the very same matter has been employed, often appear to differ greatly from one another. Nay, it is a fact well known to all impartial practitioners and inoculators, that the *distinct* and *benign* small-pox are not unfrequently produced by the matter of the *confluent*; and that, on the other hand, the *confluent* and *malignant* kind proceeds occasionally from the contagion of the other. Hence it necessarily follows, that the variolous poison is the same in its nature, and that, if there is sometimes any difference, it is only in the degree of its virulence. Although I know from experience that its effects are in no small measure increased and varied, according to its quantity, and the different ways in which it is received: but that its principal varieties proceed from the patient's temperament, habit, age, the condition of the fluids, the kind of diet, manner of life, the season of the year, or its being complicated with other diseases. Although Gatti seems to think otherwise with regard to the temperaments and the habit of body, when he ob-

erves, “ that this disease occurs alike slight or virulent, dangerous or benign, both in robust and weak habits, in meagre and corpulent ones, in warm and cold, choleric and phlegmatic temperaments, and in humid and dry habits *.” It is consistent with reason, however, that variolous epidemics, sometimes benign, and sometimes malignant, are in a great measure owing to the preceding state of the weather, to a particular condition of the solids and fluids, to stationary diseases, and sometimes to want of provisions, to the abuse of heating remedies, or to an improper plan of cure and regimen having been employed †.

* *Nouvell. Reflexions*, p. 25. † *Störck, Instruz. Pratiq.* P. 1. p. 255. *Casim. Med. Com. Lips. citat. suppl. 2. decad. 2.* p. 225. *Sydenh. l. c.*

166. But of the numerous varieties of small-pox which writers have agreed upon, I shall proceed to enumerate the principal ones, in the order that appears to be the most natural. Concerning the division of the complaint into *sporadic* and *epidemic*, as being in common to it with other acute diseases, it would be superfluous to say any thing. It will be better to proceed to the varieties derived from the origin and nature of the complaint. When small-pox, therefore, arise spontaneously, or naturally, or are occasioned by art, or inoculation, they are properly divided, first into *spontaneous*, or *natural*; and next, into *artificial*, or by *inoculation*. We shall treat of

the first in particular here, and afterwards make some observations upon the other apart. But they must be both considered either as *true*, *genuine*, and *legitimate*, or *spurious*, *bastard*, or *illegitimate*. It is proper, therefore, to describe the genuine species, before proceeding to the spurious, that their diagnosis may appear the more evident. Again, the genuine kind, whether spontaneous or artificial, according to the appearance of the pustules, their disjunction, coherence, communication, and greater or less propensity to suppuration, is very properly divided into *distinct*, *coherent*, and *confluent*. These are called *discrete*, or *distinct*, which, whether few or numerous, are disjoined from each other, so as to leave an empty space, and, thus separated, are raised into small tumours, appearing prominent above the skin. Next to the *distinct* are the *coherent* small-pox, which, in appearance, are very like the distinct ones, and so contiguous and crowded together in different parts, that many of them adhere to each other like clusters of grapes. But when these pustules appear flatter and smaller than the distinct ones, and several of them run together, exhibiting as it were large blisters, different in form and figure, and covering the face in particular, they then obtain the name of *confluent*. The *coherent* small-pox appear to hold an intermediate rank between the *distinct* and *confluent*, or, as is more generally supposed, form a particular variety

of the confluent. Yet all these distinctions, particularly the *distinct* and *confluent* species, although in their *essence* and *nature* they do not differ at all; still are attended with certain remarkable symptoms by which they may be easily discriminated *. But the distinct, coherent, and confluent small-pox, are generally recognised by the number, distinctness, contiguity, or confluence of the pustules, particularly on the face; and hence we infer that the disease is more or less dangerous †.

* Sydenh. *Oper. sect. 3. c. 2.* † De Haën *Feb. Divis.* p. 99.

167. But before entering on the subject, it will be proper to call to mind what I have already mentioned (11.), namely, that there are generally four distinct stages in small-pox. The first is named by Sydenham the *stadium separationis* *, by others simply the *apparatus exanthematum* †, or the *status contagii* ‡, or *ebullitionis*, or *effervescentiae* ||, or *germinationis* §. It includes all the period preceding the eruption from the first attack of the fever. Sometimes, however, this stage is uncertain, and often wanting, because the period of the contagion is spent without any remarkable fever, and the disease commences with the eruption ¶. The other is commonly called the *eruptive*, or *inflammatory* stage **, and appears sometimes on the second day, sometimes on the third, and sometimes even later. De Haën saw a girl while engaged day and night in

attending patients labouring under small-pox, who struggled with the fever and symptoms of the first stage for fourteen days, before the appearance of the eruption ††. Although in general, therefore, no certain time can be assigned for the first appearance of the eruption, the second stage invariably commences when the small-pox appear on the face and the rest of the body. But the third stage takes place when the pustules are inflamed, increase, and suppurate; for which reason it obtains the name of the *suppuratory* stage ‡‡, or that of the *maturation* |||. The suppuration being at length terminated, or the pus concocted, if the small-pox are of the kind in which suppuration occurs, they dry, and a desquamation takes place, when the fourth stage, called that of the *exsiccation*, or *declension* §§, or *prolapsus* ¶¶, puts a period to the disease.

* L. c. † Morton, *Exerc.* 3. c. 6. ‡ De Haën, *Rat. Cont.* T. 1. c. v. § iii. et vi. Schacht, *Inst. Med. Pract.* c. xiii. p. 51. || Meza, *Comp. Med.* fasc. 1. c. xxi. § ccvii. § Sidobre, *De Variol.* ¶ De Haën, l. c. ** Schacht, l. c. †† L. c. § vii. n. 3. ‡‡ Schacht, l. c. ||| Morton, l. c. §§ *Id. ib.* ¶¶ Schacht, l. c.

168. The distinct small-pox are generally reckoned *benign* and *regular*; on the contrary, the confluent are reckoned *malignant* and *anomalous*. But that species of the complaint is called *regular* which observes the usual and mild course; while they are called *anomalous* when they recede from that order, both in the fever, nature, and

eruption of the pustules, and in their colour, in the appearance of the crusts, and in the greater malignity of the symptoms, and in the periods of the stages, which are changed in various ways *. The small-pox which Sydenham † observed at London in 1667, 1668, and 1669, and accurately described ‡, were of the first kind; those which he observed in 1670, 1671, and 1672, were of the second. But it has been discovered, by careful investigation, that the distinct kind is sometimes more dangerous and malignant than the confluent ||; and that anomalies are not so peculiar to the confluent small-pox, as not sometimes to occur in the distinct kind, or be absent from the confluent; which, when it happens, they then appear to be in some measure *benign* and *regular*. They are, therefore, both with more propriety subdivided into *benign*, or, as Meade § calls them, *simple*, and *malignant*. According to Meade, the former appear attended with a simple fever, which does not last long, they quickly attain maturation, a few days afterwards are converted into pure pus, and fall off in scales. The latter appear accompanied with a malignant fever ¶, are slow of arriving at maturity, and do not suppurate at all; or, if they suppurate in some measure, the febrile heat never abating, they pass into scales, not without being attended with great uneasiness.

* De Haën, *Divis. Feb.* p. 91. 99. † *Oper. sect. 3. c. 1.*
 ‡ *Sect. v. c. 4. et Dissert. Ep. ad Gul. Cole.* || Meade, *De Variol. c. 2.* De Haën, *l. c.* § Meade, *ibid.* De Haën, *l. c.*
 p. 100. ¶ It must be observed, that Meade here considers the fever as being distinct from the small-pox, and ascribes their malignity to that with which the other is accompanied; while the fact seems to be the opposite of this: for I consider it as being more probable that the fever is occasioned and prolonged by the malignity of the small-pox. Tissot, describing the malignant small-pox in general, observes: "Let it suffice that extreme debility, very small pulse, a constant fever, which is aggravated in an irregular manner, slight, but constant delirium, very small, watery, ichorous, black pustules, cutaneous spots, blood discharged universally from the pores, together with heat, constant anxiety, loathing of food, and insensibility, are the unequivocal criteria of malignity in small-pox."

THE BENIGN DISTINCT SMALL-POX.

169. *The First Stage.*—But an idea of the benign or malignant nature of the small-pox cannot be better conveyed than by pointing out the marks peculiar to each variety, in such a manner that the benign may be readily distinguished from the malignant species. I shall therefore begin with the *benign distinct small-pox*. These are sometimes so mild, as to break out without any fever either before or after the eruption, or at least are accompanied with a very slight and scarcely perceptible one, and hardly any other symptom *. And Sydenham remarks, that that happens in the case of too lax a diathesis of the blood, in which, as he observes, frequently the whole period of the separation gradually passes away, without any

remarkable illness †. More frequently, however, it is for a few days preceded by a doubtful state of health ‡; after which the disease commences with fever, sometimes greater, sometimes less, according as the patient's temperament, the diathesis of the blood, the habit of body, the strength, and other circumstances, are more or less disposed to it. The patients are first affected with rigor and shivering, next grow very warm, thirsty, anxious, and restless; they have an excruciating pain in the head, back, and joints, but not constantly present; they are sick, have an inclination to vomit, or actually vomit, and perceive a sense of pain in the epigastrium, and under the ensiform cartilage, on the part being pressed. To these symptoms are added, a certain degree of stupor, or drowsiness, a great propensity to sweating in adults, and to epileptic fits, or convulsions, in infants and young people. If infants or children are seized with convulsions, or eclampsia, after dentition, we may be certain, as Sydenham tells us ||, that the small-pox are approaching, and will generally appear in a few hours, that is, if the convulsions happen, as is generally the case, in the evening, they will appear next morning; and that such small-pox are generally benign, large, and distinct, very seldom confluent. But others esteem this prognostic as fallacious §, especially in certain epidemics, particularly when the epileptic

sits last long ; for in that case they frequently cut short the patient's life before the appearance of the eruption. But the small-pox succeeding to comatose affections are generally confluent.

* Huxh. *Essays on the Small-pox.* † Sydenh. *sect. 3. c. 2.*
 ‡ Tissot, *Epist. Var. Arg. ad Haller*, p. 6. || Sydenh. *l. c.*
 § De Haën, *Divis. Feb.* p. 98.

170. With respect to the fever, it observes the type of a continued remittent, and has stated accessions and remissions. It generally remits in the morning, but in the afternoon, and evening, it is aggravated in all its symptoms, until a little before the eruption, or, as is more frequently the case, after it has begun, it no longer continues to rage. Sometimes these accessions and remissions are either wanting, or are not so manifest ; but in that case the pulse is regular, strong, and great ; likewise the heat is universally diffused, and the urine is red and thick ; all which are symptoms of the prevalence of nature. Besides, some ascribe certain other symptoms to this stage, as watching, delirium, shining and watering of the eyes, cough, and a trickling of blood from the nose *. Others add coma, subsultus tendinum, restlessness, sickness †, nay, sometimes sneezing, the flow of the menses, acrid thinness and dissolution of the blood, costiveness in adults, and diarrhœa in young people ‡ ; and sometimes colic, nay, nephritic and pleuritic pains ||. But these symp-

toms generally take place when the disease is uncommonly violent, particularly when it is of a doubtful nature, and accompanied with any malignity, as Morton very properly remarks §.

* Ponticell. *Infortun. del Vajuolo*, c. 2. † Morton, l. c. *Exercit. 3. De Appar. Variol.* c. vii. ‡ Richa once observed a variolous epidemy, which began with looseness, and was all along attended with it, and which had a successful termination; whether it happened in consequence of its being combined with a colluvies of the *primæ viæ*, or from a portion of the variolous matter passing off in that way, *Consl. Epid. Taurin. an. 1770*, § xv. Vogel, also, saw an instance of a salutary diarrhoea continuing from the commencement to the eleventh day of the disease; but that which came on later proved fatal, *V. Com. Lips. V. 7. P. 1. p. 125.* || Schacht, *Inst. Med. Pract.* c. xiii. § iv. § L. c. *Exerc. 3. c. vii.*

171. *The Second Stage.*—Frequently towards the end of the third day, more frequently about the beginning of the fourth, sometimes a little later, very seldom sooner, the distinct small-pox begin sparsely, first upon the face, neck, cheeks, forehead, lips, breast, and arms, having the appearance of small points, generally of the size of the pricks made by pins, and of a red colour, shortly afterwards rising into small distinct pustules, raising the skin, particularly towards the end of the fourth day, but much more on the fifth. From the face they spread successively, but gently, to the belly, back, shoulders, hands, and lower extremities. They assume a round figure, and exhibit a small, hardish tumour, which

does not yield to the touch, and is of a dark red colour. Generally within a single day they diffuse themselves over the whole body. It seldom happens that they are increased in number on the following days. Next day after the eruption, their base becomes enlarged, and on the third day, beyond which the eruption seldom continues, they terminate in a point*. At this period, also, there is a slight degree of pain and inflammation in the throat, a few pustules breaking out there. The pain of the pustules increases as the small-pox arrive at a height. They arrive at maturation, as I have said, in a gradual manner; and while most of them are increasing in bulk, other smaller ones, which had broken out at first, are gradually obliterated, as if the matter passed to nourish and fill the greater ones; nor do they return any more, at least in the same place†. And while the small-pox are rising into a greater head, and their base is enlarged, the surrounding skin becomes tense, and is suffused with redness. Upon the tops of them frequently small vesicles are observed, containing a thin limpid fluid, which gradually becomes yellow, and at its proper time is converted into true pus.

* Morton, l. c. *Erupt. Variol.* c. viii. † De Hæen, l. c.

172. Among the marks of benignity in this species of small-pox (170. and 171.), the principal and peculiar one is, that on the day of the eruption, namely, on the third or fourth from

the beginning of the disease, the fever of a sudden ceases, with all its symptoms; or at least subsides in such a manner, as on the fifth and sixth day scarcely to be perceived. Nor is it surprising, that on the variolous matter being intirely forced to the surface, the internal parts should be freed from its irritation, in consequence of which the fever and other symptoms altogether disappear. Hence the patients being freed from the fever, pains, sickness, watching, delirium, and other symptoms, which attended the fever, not only feel themselves well, but also recovering their appetite and strength, become chearful and jocular, except that adults continue to be exhausted with copious sweats, although they use thin cloathing, and are studious to avoid whatever may occasion them. But these sweats do not altogether desist, until the suppuration and maturation of the pustules. Then they stop, merely of their own accord *, in consequence, perhaps, of the pores being compressed by the inflammation and swelling of the skin.

* Syden. l. c. Ponticel. l. c.

173. *The Third Stage.*—About the end of the sixth day, or in the beginning of the seventh, from the commencement of the disease, that is, on the third or fourth day of the eruption *, the pulse becomes stronger and more hurried, especially in the evening, and the heat of the skin greater, so that the fever, which had departed intirely, appears

not return, or, if it had only lain dormant, is revived. Nay, such is the commotion sometimes, that the patients after a short sleep start out of it, mutter to themselves, and are extremely restless. But this exacerbation is occasioned by the commencing suppuration of the pustules, after which it ceases intirely. For then the pustules are inflamed, and increase, the intervals begin to be more manifestly red and swelled, accompanied with an uneasy sensation of tension and lancinating pain. This is followed by dejection, tossing of the body, and a sense of heat both internally and externally. But the small-pox, which are perfectly round and distinct, without being accompanied with any other spots or eruptions, on the first day of the eruption exhibit a red margin, are full and white upon the top, and contain a thin fluid. On the second day they become broader at the base, terminate in a peak, and are less pellucid. Lastly, on the third day, which is generally the last in this stage, the fluid being converted into pus, soon after a desquamation takes place, the patient's indisposition, and every other troublesome symptom of the suppuration in the mean time ceasing †.

* In the mildest distinct small-pox, all the stages are generally shorter, none of them, for the most part, exceeding three days; so that on the ninth day of the disease, the pustules generally begin to dry and fall off, particularly on the face.

† Morton, *Exerc.* 3. c. ix. p. 106.

174. But as the first symptoms of suppuration

occur in the pustules of the face, immediately on its commencement, the whole face becomes enormously swelled, and, as the stage advances, the eye-lids also become swelled and inflated, so that being brought together, they shut up the eyes entirely, resembling an inflated and pellucid vesicle drawn over them. It sometimes happens that the eyes are closed up before this, when the pustules, at the beginning of the eruption, assail the eye-lids, and the eyes themselves, in great numbers. After the face, the hands next swell, and the fingers become tense, on account of the inflammation occasioned by the pustules. This happens only when the small-pox are numerous; for, when they are few in number, they scarcely occasion any fever, or uneasiness, nor are the eyes closed in consequence of the swelling of the face and eye-lids. But when there is a very copious eruption, the pustules are then not very prominent, but become gradually flatter, and are observed to be somewhat depressed in the middle. They are otherwise uniformly swelled*, and, attaining their full size, become sometimes as big as a pretty large pea. They are lastly filled with a yellow fluid, which is truly purulent, their base at the same time being surrounded with a red circle, which is the best proof of suppuration, and often being accompanied with an uneasy itching, on which account children's hands ought to be wrapped up in very soft bags,

that they may not tear the pustules and skin with their nails.

* De Haën, l. c. p. 94.

175. On the eighth or ninth day of the disease, the pustules begin to grow of a dark colour, first on the face, and then in the neighbouring parts, particularly in the centre or apex, where they open and pour out a yellow, glutinous matter, in colour and consistence not unlike honey, or the humour of the eyes *, which gradually becoming hard, appears like concrete gum-arabic. After this, from being smooth they become rough, and whatever redness was in them before becomes white, palish, and yellow, which is the termination of complete suppuration. The fever then, if any had arisen in consequence of the suppuration, resembling the type of a remittent or intermittent, on the cause ceasing, again disappears, frequently a gentle sweat breaking out all over the body. While on the face and trunk they become of a dark brown, or yellow, and rough, the rest on the limbs appear full of pus, and somewhat depressed; neither becoming rough nor drying. It is proper to observe, however, that during the period of suppuration, the more genuine and benign the small-pox are, the brighter and more shining is the colour of the interstices, being like that of damask roses.

* Sydenh. l. c. Ponticel. l. c.

176. *The Fourth Stage.*—On the suppuration being perfected, the swelling of the face begins to subside, which happens generally on the tenth or eleventh day at farthest. The swelling passes from the face to the hands and feet, because, as the eruption is generally slower of taking place in them, so also the inflammation and suppuration of the pustules take place there last. In the mean time the pustules of the face and upper parts of the body having become ripe, now dry, and the crusts begin to fall off, so that many of them on the twelfth or thirteenth day, others on the fourteenth or fifteenth, are observed to have become completely dry, and converted into crusts. But the pustules on the extremities, because they are later of breaking out and suppurating, still require one or two days to dry. In general, however, being filled with pus, and becoming white, they rather burst than dry, contrary to what happens on the face and elsewhere. The pustules being at length dried, and falling off, are at length succeeded by mealy scales, which, on separating, sometimes leave pits in the skin. For when crusts of the small-pox first separate, no hollow is found in the skin, but there rather remains a slight depression in their seats. But when the scales which I have mentioned fall off, not only that depression disappears, but also the skin itself is found covered with pits; although in the distinct and benign small-pox it

very feldom happens that any fuch marks are left conspicuous or of long duration, excepting a few red fpoths, which always remain about two months, before the fkin recovers its former white colour *. Laftly, it is to be obferved, that during the whole courfe of the difeafe the belly is either bound, or ftools occur very feldom, without any bad confequences arifing from it †.

* Sydenh. l. c.

† *Id. ib.*

177. Such is the common courfe of the diftinct and benign fmall-pox. It muft be confeffed, however, that they are fometimes fubject to flight varieties, and in fome meafure fwerve from their ufual mode of proceeding. But this does not alter either their nature or their termination, if they are properly treated. In the firft place, the diftinct fmall-pox fometimes occur retaining the nature of the benign kind, but in fome meafure differing from them, on account of the greater length of the ftage of maturation. For the puf-tules, on the firft or fecond day of the fuppuration, become white, but, on account of containing a fmall quantity of fluid, the apices appear fomewhat more depressed; nor are they filled, or rife to a point, before the third or fourth day; and, laftly, they begin to grow yellow on the fifth. But, like the benign ones, they are altogether free from the fever, ptyalifm, great difcharge of urine, or fwelling of the extremities, which are marks almoft peculiar to the malignant

and confluent kind, and they undergo this change during the period of maturation only. It is, moreover, proper to observe, that the ptyalism, which at other times, on the eruption commencing, supervenes in the confluent kind, and is, as it were, its peculiar mark ;—is occasionally observed in the distinct kind, as we are informed by Sydenham * and De Haën †, and, on its coming on, that the want of the diarrhœa is supplied, and service done by it ‡. But it appears that both may be truly said of the distinct small-pox, not of the benign kind ; for in the malignant kind the patient is only troubled with a diarrhœa, and, if it is deficient, the ptyalism will fully supply its place.

* *Oper. sect. 3. c. 6.* † *L. c. p. 97.* ‡ *Tissot, l. c. p. 44.*

THE MALIGNANT DISTINCT SMALL-POX.

178. HITHERTO I have treated of the benign distinct small-pox ; I shall now proceed to the malignant kind : for I have already observed (168.), that the distinct small-pox are sometimes attended with marks of malignity and danger. When that happens, they are generally attended with nearly the same symptoms, which I have already described as accompanying the benign species (168. 169.), but more violent in degree. In the first stage there is a more distressing pain in the head and loins ; there is greater debility, anxiety, restlessness, stupor, and alienation of

mind, together with nausea, vomiting, and other symptoms, either more troublesome, or more irregular, and repugnant with one another, immediately giving reason to suspect its pernicious and malignant nature. This suspicion is increased, and almost confirmed beyond a doubt, particularly by obstinate watching and delirium, or on the other hand by deep sleep, subsultus tendinum, trembling of the limbs, languor, and a disposition to faint, and especially by irregular, quick, laborious respiration, accompanied with frequent sighing. The fever also is very different from that in the benign kind. For it is either more ardent, like a continent one, more constant, and accompanied with a quicker and stronger pulse at the very beginning * ; or, on the other hand, it is in appearance slighter, attended with a pulse not very quick, but small, weak, and irregular, mild heat, either no thirst, or very little, although the tongue is apt to become dry. In the mean time, on the second or third day of the disease, the miliary eruption, or petechiæ, or livid spots, break out on the neck, breast, and arms, which more manifestly point out the malignity and severity of the disease, with which the small-pox are combined. But if those eruptions do not break out in the first stage, they will certainly appear in that which immediately follows, that is, during the actual efflorescence of the small-pox. To these symptoms are added, a copious discharge

of thin watery urine, sometimes so acrid as to irritate the bladder and urethra †, or turbid, but not depositing a sediment.

* Ponticell. *Infort. del Vajuiol.* c. 3. † *Id. ib.*

179. The eruption, as in the benign distinct small-pox, commences on the fourth day, but the pustules come out slowly and difficultly; nor do they observe the same order as the benign distinct ones. For those which appeared on the fourth day are gradually succeeded by others on the fifth or sixth; while, in the benign kind, almost the whole eruption is generally completed in twenty-four hours. But the pustules themselves, although distinct, differ much from one another in size, figure, and colour. For some are greater, others smaller; some peaked, others obtuse, and depressed in the middle, and are therefore called *umbilicales*; some palish or brownish, others pellucid, and containing a very thin fluid. Most of them occasion none, or very little pain, contrary to what happens in the benign kind; in place of which they are often attended with intolerable itching. But according as the spots break out with difficulty, slowly, and irregularly, they are slower of arriving at their height, their bases are longer of being extended, and they do not so soon terminate in a peak. Neither does the fever, as in the benign kind, cease on the eruption taking place; nor does it receive any remarkable relief, but remains constant, nay, is frequently aggravated

with all the symptoms ; and this seems to constitute the principal characteristic mark of malignant small-pox, and with reason. For it is probable, that either the quantity of the poison is so great, or such is the vitiation of the blood and other fluids, induced by it, that even after a very copious eruption has broken out on the skin, it does not occasion the total expulsion of the virus ; but great part of it remaining in the system affects all the solids, and the viscera themselves *, corrupting almost all the fluids, in consequence of which it happens, that not only the fever is kept up, but also very bad symptoms arise, or such as are present are greatly aggravated.

* It is a question, whether the viscera are liable to small-pox ? Haller, in his history of the variolous epidemy which prevailed in 1735, towards the end of it observes : “ I never found in a dead body the pustules penetrating deeper than the pharynx, or affecting the stomach or intestines, or other viscera. Tiffot also (*Epist. var. Argum. ad Haller.* p. 46. *ed. Ven.* 1774.), in four dead bodies, could find no mark of the internal parts having been affected with small-pox. But De Haën (*Rat. Cont. T. i. c. v. § viii. N. V.*), taught by experience, is of opinion that the small-pox happen internally, although they are not discovered in all dead bodies ; and indeed they are recorded to have been sometimes found internally by other men of learning and experience. Fernelius (*Lib. 2. De Abdit. Rer. Causs.* c. 2.) observes : “ It has been frequently found, that in some who had died of the small-pox, the liver, spleen, lungs, and all the internal viscera in the same manner as the skin, were covered with very foul open pustules. Ballonius tells us, that in a certain knight, who died of the small-pox, he found the internal viscera full of tubercles (*Epid. et Ephem. l. 2. p. 207.*). Horst

(*Instit. Med. Disput. 3. Addit. 1. Ep. ad Henric. Arnifæum, Op. T. i. p. 140.*) mentions, that in a nobleman, affected with this complaint, not only the whole external surface of the body was beset with small-pox, but likewise the internal viscera abounded with these pustules. Pary also in two girls had an opportunity of seeing the internal viscera covered with dry pustules, such as break out on the skin (*Lib. 19. C. 1.*). Lastly, these facts are confirmed by Meade (*De Variol. c. 3.*), who found the lungs, brain, liver, and intestines, sometimes covered with pustules. As I find the highest medical authorities ranked on both sides of the question, it is a difficult matter to determine which of their opinions we ought to adopt.

180. But if, as sometimes happens, the pustules, in size, figure, and colour, seem to resemble the benign small-pox, still they occasion apprehension, in consequence of the immoderate looseness, the sweating attended with no relief, the delirium, watching, and other unfavourable symptoms; lest about the beginning of the suppuratory, or third stage, the patients, as too often happens, be suddenly cut off by spasms, or profound lethargy, or some other terrible symptom. Or even unless petechiæ, or livid spots, or the miliary eruption, have already appeared in the first stage, such eruptions attach themselves to the small-pox on the second day of the efflorescence, and the interstices, especially on the neck, breast, and arms, if attentively observed, are found to abound with them. Nor are there wanting other symptoms of malignity, as weak pulse, debility, fainting, spasms, men-

tal imbecility, and the like *, frequently portending death. Nor is it surprising, when, in addition to the variolous virus, the petechial or miliary one, or both together, are joined, increasing the magnitude of the danger. It is of consequence also to know, that in the malignant distinct small-pox, the face and eye-brows are sometimes so swelled, as to close the eyes sooner than in the benign kind, and the voice becomes much more hoarse.

* Morton, *Exerc.* 3. c. vi. vii. viii.

181. In the mean time, the variolous pustules, attended with a fever more or less severe and constant, gradually increase until the eighth day, and attain their height; when suppuration, or the third stage, takes place. It frequently happens at this time, as I have already observed, that suddenly spasms, and distensions of the nerves, or lethargy, or other symptoms threatening death, supervene *. And it is a mark almost peculiar to this species of small-pox, that they very seldom, or very slowly, arrive at maturity †. And although, during the suppuratory stage, they are sometimes inflamed, attended with violent fever and pain, and a frequent sensation of pricking is felt internally, intimating to a certainty that they are making an effort towards suppuration;—nevertheless they do not mature, the efforts of nature being rendered completely abortive. When these symptoms happen without a good suppur-

tion being obtained, then delirium, or coma, or anxiety, with a peripneumonic oppression at the chest, or an anginous suffocation, and, lastly, sudden death †, generally follow. Sometimes, however, the fever is moderate, and the suppuration, however lingering, goes on well, and is brought to a conclusion. After this, at length a proper exsiccation, as in the benign kind, takes place, and the patients are thus restored to health ||. To the malignant distinct small-pox ought to be referred, the anomalous small-pox of the years 1670, 1671, and 1672, named by him *black* small-pox §. These were distinct, but generally broke out on the third day, nor did they rise to the same size, in the progress of the disease, as the benign distinct kind, but were rougher, and towards the end of the complaint, after maturation, they very frequently became black. Sometimes, although the eruption was very sparing, they were accompanied with ptyalism.

* *Id.* l. c. p. 80. † *Id.* *ib.* ‡ Ponticel. l. c. || *Id.* *ib.*
§ *Op.* sect. iii. c. vi. p. 228.

182. Besides, there is a particular kind of distinct small-pox, partly benign, partly malignant. In it the small-pox, at the beginning of the eruption, appear not only distinct, but in their figure, colour, and in their ordinary termination, likewise benign; nor does any symptom of malignity precede, nor afterwards accompany them.

On the eruption taking place, however, they assume a new disposition, and grow malignant; for they then become low and depressed, nay, they suddenly put on a livid colour. But, on the suppuratory stage commencing, they dry, become white on the apices, and no longer contain any fluid; nor is the want of them supplied by any subsidiary evacuation; for there is no discharge of saliva, or urine, in them, by which, as in the confluent kind, the exuberant part of the morbid fluid, on retiring into the system, is forced out; nor does any swelling of the extremities supervene, by which the matter retained is collected together and deposited elsewhere, as in other malignant diseases. Sometimes, as Meade remarks*, this kind of small-pox breaks out without much fever, and with little pain, so that they seem to be free of any danger. But this appearance of benignity is intirely deceptive. For, in the third stage, when they ought to ripen, the efforts of nature suddenly becoming too weak, no supuration takes place. Hence the fever is aggravated, and delirium, together with difficulty of breathing, supervening, the patient is in a short time cut off. Not unfrequently they are combined with petechiæ, or other bad eruptions, in consequence of which they acquire that malignity which they would otherwise have wanted. At other times, on the eruption being brought to a proper termination, they run into

one another, or at least mutually adhere; and thus, from being distinct and benign, which they were at first, they degenerate into confluent, and often into malignant small-pox. Sometimes, also, the fever,—which before the eruption took place was benign and mild, and afterwards seemed to intermit, or at least to abate considerably, as in the benign kind,—towards the end of the eruption, laying aside its appearance of benignity, watching, delirium, and hemorrhages come on, or a discharge of urine, and other symptoms of malignity. But in this kind of small-pox the fatal termination is neither so rapid, nor so inevitable, as in the primary malignant small-pox, as more escape from it. But a few of those who cannot withstand the violence of the disease, generally die about the eleventh or twelfth day, which proves fatal, also, in the confluent kind †. But if any of them are preserved, no maturation taking place, they linger with much difficulty, and like people on the point of death, through the fourth stage, or that of the declension, which is protracted to an indefinite length of time ‡.

* *De Var.* c. iv. † *Mort. Exerc.* 3. c. ix. p. 107. ‡ *Id. ib.*

183. To the malignant distinct small-pox belong several species, which, although distinct, never arrive at suppuration. There are two varieties of these, namely, the *variolaë crystallinæ*, and the *variolaë verrucosæ*. The species consist-

ing of a thin, lymphatic, pellucid, acrid fluid, incapable of suppuration, or being even of a caustic and corroding kind, is generally called *crystalline* *. Hence it is named by some, also, *lymphatic*. I confess that it is not always distinct, but sometimes breaks out and proceeds after the manner of the confluent small-pox †. But it is then easily distinguished from the distinct kind, of which we here treat, by the confluence and complication of the pustules. They are likewise discriminated from the spurious small-pox, between which and the crystalline kind there is some resemblance ‡, —as will be shewn in its proper place,—by the continued fever, the danger of the symptoms, and their greater duration. Moreover, Meade refers to the crystalline small-pox, as a particular variety of them, the *variolæ siliquosæ* of Freind ||, namely, those small-pox which are without any fluid, or round, soft, hollow, empty vesicles, proceeding from the fluid with which they were filled, either having been absorbed, or, on their bursting, poured out, or in some measure exhausted by the quantity of the saliva discharged §. The other variety, namely, that of the *verrucosæ*, comprehends likewise distinct small-pox, but such as are hard, very like warts, raised above the skin, and consisting of a thick, tenacious, concrete mucus ¶. For none of the lymphatic fluid passes into them, or is any empty space seen; but they are red and hard from the fourth to the

last day of the of the disease, constantly preserving the same appearance and figure **. These also are generally of the distinct and malignant kind ††, and incapable of suppuration, although I do not deny that they are sometimes ranked among the benign or spurious small-pox ‡‡; but then they are without the symptoms of malignity, namely, the fever and other dreadful symptoms, which accompany the malignant distinct kind. But when they are malignant they are by no means resolved by suppuration, nor do they crack or fall off in crusts, but a desquamation takes place gradually |||. Meade supposed this kind to be worse than the *crystalline*, although that is denied by others, probably on account of their having seen them, as De Haën did, in the benign state §§.

* De Haën, *Feb. Div.* c. 2. † Meade, *De Variol.* c. 2.

‡ De Haën, l. c. p. 99. || *De quibusd. Variol. gen. ad* Meade, Ep. 2. § Meade, l. c. ¶ Sagar, *De Variol. Iglaviens.* p. 29. ** Meade, l. c. p. 18. Sagar, l. c. p. 29.

†† Freind, *De quibusd. Var. gen. ad cl.* Meade, Ep. 2.

‡‡ Meade, *ibid.* An instance of malignant small-pox is to be found in Freind, in the passage already quoted, where a faithful history of a fatal case of the disease is given. ||| De Haën, l. c. p. 92. who is doubtful whether the *crystalline* small-pox of Meade, together with the *siliquosa* and *verrucosa* of Freind, and other varieties, really belong to the anomalous and malignant small-pox, because he observed them terminate without inconvenience and danger. But I should imagine that he then saw only a variety of the benign or spurious small-pox. §§ *Id.* l. c.

THE BENIGN CONFLUENT SMALL-POX.

184. AFTER the distinct small-pox follow the *confluent*; but an intermediate place is held by the *coherent* kind, as it is called (166.). In these the pustules break out in the manner of the distinct ones, but differ from them in this, that they cover the skin so thickly as in most parts to touch each other, like clusters of grapes. But we must pay particular attention to the pustules which appear on the face, for the *distinctness*, *coherence*, or *confluence* of the small-pox, is inferred from them principally, not from those on the rest of the body. Hence, if the pustules on the face be distinct, although on other parts of the body they be coherent, or confluent, they nevertheless retain the nature of the *distinct* kind. On the other hand, if they cohere, or run together, on the face, although they appear distinct elsewhere, they are attended with the bad disposition of the *coherent*, or *confluent* kind. Moreover, the *coherent* kind occasions more fever, and is slower of ripening, than the benign distinct species; for they seldom suppurate and maturate on the eighth day. Hence, also, they are longer of forming into crusts and falling off. In the *coherent* kind, likewise, the ptyalism seldom occurs, which is generally the inseparable concomitant of the confluent small-pox, and for the most part absent from the distinct kind, at least when benign. On the whole, the *coherent* small-pox are considered as

being milder than the confluent* ; although even they may be malignant, according as the fever, on the eruption taking place, either ceases, or continues, and malignant symptoms are either absent or present. But, because they approach nearer to the confluent kind, than to the distinct, in number, form, and severity ; I beg leave, with Ponticellius, to comprehend them both under one head †.

* De Haën, *Febr. Div.* p. 98. † L. c. c. iv.

185. As the confluent small-pox, therefore, on the whole, are more severe and dangerous than the distinct, at least the benign distinct, they are considered as being of so bad a disposition, as to be commonly esteemed malignant and anomalous. But they sometimes run their course without much danger, and terminate favourably, insomuch that, compared with the malignant distinct small-pox, they may be called benign. On which account I consider it as better to divide them into *benign*, or less dangerous ; and *malignant*, or more dangerous. But before entering on the treatment of each, the order requires my beginning with an explanation of the *benign* kind, gradually proceeding to the malignant ; and I shall take the liberty of occasionally interspersing my account with remarks calculated to illustrate both.

186. The first stage of the confluent small-pox is passed nearly in the same manner as that of the benign distinct (169.) kind, unless that

the fever and other symptoms, as anxiety, sickness, an inclination to vomit, actual vomiting, thirst, pain of the head, back, and loins, &c. are generally somewhat more severe; but there is less, or at least more rarely, a disposition to sweating in adults *, and more frequently a diarrhoea in children †, not only preceding the eruption, but occasionally prolonged one or two days beyond its commencement; which Sydenham never observed to occur in the distinct kind. But although the fever continues to distress the patient severely, from its first attack to the commencement of the eruption, it is not very acute, nor is it attended with such dejection, dyspnoea, perturbation of mind, or smallness and weakness of the pulse, as in the malignant distinct kind (178.). Nay, after the eruption it shortly abates somewhat, frequently intermitting, as in the benign distinct kind, especially in the morning, until the suppuratory stage commences. Then indeed it arises again, but, after the pus being digested, it soon disappears. On the other hand, in the malignant confluent small-pox it is constant, and not a little aggravated, together with all the other symptoms, in the evening and at night ‡. This symptom requires particular attention, as by it, in particular, is pointed out the benignity or malignity of the small-pox. Likewise, in the benign confluent small-pox, during this stage, we never find petechiæ, livid spots,

and the miliary eruption, or tremors and subfultus tendinum, fymptoms which generally precede the malignant fmall-pox, whether diftinct or confluent.

* Sydenh. l. c. † *Id. ib.* De Hæen, *Febr. Div.* p. 95. 96. Schacht, *Inft. Med. Pract.* c. xiii. § v. ‡ Sydenh. l. c.

187. In the beginning of the third day, nay even fooner, the fecond ftage commences, and is prolonged beyond the time of that in the diftinct fmall-pox, particularly when benign. The fooner the fmall-pox break out, the more confluent and copious do they generally become *. Sometimes the eruption is deferred until the fifth, fixth, or feventh day, and even later, but that is always an unfavourable fymptom, and happens efpecially in the malignant confluent fmall-pox. For then the powers of the fyftem being either too languid, or overcome with the malignity of the difeafe, or exhausted with fome pain, not a vague and changeable one (which is attended with little danger), but fixed and lafting, in the loins refembling a nephritic pain, in the fide a pleuritic one, or in the joints or ftomach, being accompanied with great ficknefs, and vomiting, putting on the appearance of gout, cardialgia, or colic,—force out the puftules with difficulty, and occafion a lingering eruption. But many break out, at the very beginning, entangled with one another, or coherent, or running together. It fometimes happens that at firft they appear diftinct, but

shortly after either cohere, or run together, and form larger vesicles. Generally they are very small, and more minute and thick, than in the distinct species, so that at first it is not easy to distinguish them from measles, or erysipelas. From both of them, however, they are distinguished by the absence of the other symptoms belonging to erysipelas, or measles, by the consideration of the prevailing epidemy, and shortly by the more manifest vesicular and variolous appearance of the pustules. If, then, the face be covered with such pustules, very thickly spread, like small grains of sand, although on the rest of the body they appear distinct, and are few in number, they do not depart from the nature and severity of the confluent small-pox, any more than if all the limbs were crowded with them. On the other hand, if they cover the trunk and limbs in great multitudes, while those on the face are more sparingly scattered, and larger, they approach more nearly to the benignity of the distinct kind, and indicate a milder state of the disease. For the degree of the disease, and the benignity and malignity of the confluent small-pox, are indicated most certainly, as I have already said, by the number and quality of the pox with which the face is covered. After the eruption takes place, if the fever does not cease, together with its symptoms,—as in the benign distinct kind,—in general, however, when the confluent small-pox are truly benign, it remits very much ;

but if they are malignant, this does not happen †.

* Sydenh. l. c. De Haën, l. c. p. 96. † Schacht, l. c. c. xxi. De Haën, l. c.

188. The confluent small-pox, therefore, after their appearance, increase in size daily, but scarcely ever rise to the same size which the distinct small-pox, particularly those on the face, attain. For, communicating with each other like red vesicles, they cover the whole face, and shortly after assume the appearance of a broad white pellicle, adhering as it were to the whole face, and rising a little above the skin *. But the farther down they go below the face, the pustules gradually become somewhat larger, being greatest of all on the hands and feet, but always less than the distinct ones. They contain a more aqueous and limpid fluid, which by its acrimony occasions very uneasy itching. The whole face becomes sooner swelled than in the benign distinct kind †. Infants and children are almost always affected with diarrhœa, and adults ‡ with ptyalism, which arises immediately on the eruption happening ||, or, at least, supervenes next day, or the day after, and is reckoned almost a constant symptom of confluent small-pox ; although, to tell the truth, it is sometimes wanting in them, as it is almost always in the distinct kind §. The ptyalism consists of a thin fluid, which is discharged copiously for several days, namely, until the suppuratory

stage at least, wetting a great deal of linen, both during the day and at night. Such are the marks in common to the confluent small-pox, whether benign or malignant. But the other symptoms, which in this stage are ascribed to the confluent small-pox, as phrenitis, coma, petechiæ, black pustules, hemorrhages from the nose, and an irregular flow of the menses, urine discharged with blood, or strangury ¶, and such like symptoms, scarce ever happen in the benign confluent small-pox, being almost peculiar to the malignant confluent species, as I shall afterwards shew.

* Sydenh. l. c. † *Id.* l. c. De Haën, l. c. p. 97. Schacht, l. c. ‡ Sagar (*Epid. Iglavien. an. 1776*, p. 17.) in-children observed the ptyalism sometimes supervening in this stage, but more frequently in the third. But the small-pox were extremely malignant during the prevalence of that epidemy. The saliva, which was discharged, was very acrid and almost caustic, and, if it was not quickly spit out, it created the worst complaints. For, if swallowed, it first caused pain and anxiety, and next convulsions, succeeded by death. || Sydenh. l. c. § De Haën, l. c. p. 97. Schacht, l. c. ¶ *Id. ib.*

189. About the eighth day from the commencement of the eruption*, namely, on the ninth, tenth, or eleventh day of the disease from the beginning, sometimes on the fourteenth, sometimes on the fifteenth, according as the eruption appears sooner or later, the third stage, or that of the suppuration, commences. But the more slowly this happens the worse. Then, if the disease is benign, the pustules ripen, and

the pus is digested ; but they are not raised much, nor do they rise to a point like the benign distinct kind. And the less confluent they are, and therefore the more benign, the sooner do they arrive at maturity, and the more yellow do they grow. On the other hand, if the disease is malignant, they scarcely ever suppurate completely, and remain flat and depressed ; and the more severe the complaint is, the darker colour do they assume ; and, when left to themselves, the flower are they of filling with pus. But the white pellicle, already mentioned, grows rougher to the touch, and gradually becomes, not yellow, as in the benign kind, but dark-coloured †, and tense. In the mean time the saliva growing more viscid and thicker, as generally happens in the regular small-pox, on the eleventh day is discharged with great difficulty, threatening the patient with suffocation. The patients, therefore, become anxious and thirsty, and are sometimes seized with coughing when they drink, because the drink passes into the larynx, and thus exciting a cough, is rejected through the nostrils ; the voice becomes hoarse ; drowsiness and stupor come on ; and the ptyalism being altogether suppressed, the swelling of the face subsides, and frequently on the same day, that is, on the eleventh, the skin becoming paler, and panting respiration supervening, attended with a placid absence of mind, death very

speedily, and as it were unexpectedly, puts a period to the patient's existence. It is proper to observe, however, that the ptyalism, which, as I have said, usually stops about this time, frequently returns after one or two days, and is successfully renewed. But when this does not happen, nothing, as I have observed, is more pernicious than its ceasing, unless its place be supplied by the swelling of the face remaining, by which some portion of the variolous matter is retained, and prevented from being forced into the system, or unless that which ought to have been excreted by the ptyalism be transferred to the hands and feet, occasioning in them a salutary swelling, and averting the fatal consequences that are threatened. For it is not necessary that the swelling of the face should subside all of a sudden, but gradually, so that it ought to remain still a few days, and be succeeded by that of the hands and feet, if we are to pronounce the patient's life in safety †. But if both the ptyalism intirely stops, and the swelling of the face subsides sooner than proper, without that of either the hands or feet coming in place of them, the only hope that remains is by a copious discharge by the kidneys, or the bowels, in order that the noxious matter of the small-pox may be carried off, as generally happens in the benign, confluent, and regular small-pox. In the same manner, therefore, as a copious, easy, and long-kept-up ptyalism in a-

adults, is of great consequence to produce a favourable termination, so in infants and children the diarrhœa contributes very much to that end; and though it does not attack them so soon as the ptyalism attacks adults, at whatever time it comes on, it continues with a salutary effect to the end of the disease, unless it is improperly stopped by art. It ought not to be checked, if it be not too profuse, and do not waste the strength. For both evacuations, the ptyalism in adults, and the diarrhœa in infants and children, in this disease seem not less necessary than the presence and maturation of the pustules, and the swelling of the face, hands, or feet.

* De Haën, l. c. p. 97. † *Id. ib.* Syden. l. c. ‡ Syden. l. c.

190. When the maturation begins, the fever is more or less aggravated, as I have already shewn (189.), according as the pustules are more crowded and copious, and more or less confluent, or the more benign their nature is. For, not only does the pulse become quicker in consequence of the suppuration, but the fever also is aggravated, nor does it disappear on the suppuration being terminated. However, as this fever corresponds with the number of the pustules*, which in the confluent small-pox is very great, it seems in a great measure to arise from their suppuration, or at least from the quantity of the pus and ichor, with which they abound, being

again received into the blood. Some likewise add retention of the cuticular discharge, and not without a shew of probability, since the whole skin is so beset with pustules, that scarcely any perspiration can take place by the pores. It is also probable, as the fever is sometimes aggravated and prolonged without much suppuration, that it derives its origin from the variolous matter being left in the blood, because perhaps it could not be intirely received by the skin, or because the vital powers were not adequate to its total expulsion. The subsequent eruption of pustules, which often happens, seems to shew that this is the case. This fever obtains the name of *secondary*, and at one time shews an inflammatory disposition, at another a putrid, according to the difference of the blood, temperament, age, habit, season of year, and the prevailing epidemy. It increases, more or less, according to the greater or lesser number and violence of the causes. It is prolonged also to the beginning of the fourth stage, when the whole skin is covered with a thick crust, and more or less brown, under which there is a fluctuation of pus. That pus being absorbed, not only seems to cherish the fever, as I have already stated, but also passes by metastasis into the most important internal parts, where it adheres, and occasions the most dangerous diseases. But that which settles on the surface erodes the parts lying under the skin, particularly the adipose

membrane, almost all the fat of which becomes putrid † ; often all the way to the bones, sometimes giving rise to caries and spina ventosa. In the mean time the pustules on the limbs burst, without any exsiccation taking place ; nay, the back and other parts being deprived of the cuticle, the raw skin is exposed.

* Sydenh. l. c. † I have already observed (189.) that the confluent small-pox are the more dangerous, the later and more difficultly they arrive at suppuration. With a view to this principally, Sydenham established three species of confluent small-pox, namely, the *mildest*, in which the *secondary* fever happens on the eleventh day from the first attack of the disease, partly from incipient suppuration, partly from absorption of pus; the *mediocres*, in which on the fourteenth the suppuration only begins ; and the *crudiffimæ*, which do not suppurate before the seventeenth day. *Dissert. Epist.* p. 405. ‡ That the fat in this species of the disease putrefies, and is converted into pus, is so evident, that Haller saw variolous matter blaze on being applied to a candle. *Hist. Var. an.* 1735.

191. At length the cuticle, both on the face and elsewhere, falls off in broader scales ; and this happens on the seventeenth or twentieth day, or sometimes even later*. After the scales fall off, the skin underneath remains red, but in a short time is covered with a whitish pellicle, which falling off, in like manner, no perceptible roughness is left on the face, but it is soon succeeded by mealy scales of a very corrosive nature, which, according to their greater or lesser

corrosive power, not only leave pits more or less deep, but also disfigure the face with fouler cicatrices than are left by the distinct pox, especially when benign †. Likewise the pus, which is absorbed, passes off sometimes by the kidneys, sometimes by the bowels, at times some part of it is collected here and there in the cellular membrane, and gives rise to abscesses, or red painful tumours quickly terminating in abscess, which, when opened at the proper time, pour out true pus, or copious, and sometimes acrid and corrosive sanies. And this generally happens towards the end of the desquamation; the fever in the mean time not being thoroughly discussed, but rendered milder, and, like a remittent, still having accessions, until it gradually disappears. Sometimes after the pox have dried and fallen off, they are succeeded by smaller distinct ones, which carry the remains of the morbid matter to the surface; and these are called *secondary* small-pox, or *repullulantes*. But many of the symptoms already mentioned are in common to the present species of small-pox and the distinct one, especially when of a bad disposition ‡.

* De Haën, l. c. p. 97. † Sydenh. l. c. ‡ Schacht, l. c. § xxxiv.

THE MALIGNANT CONFLUENT SMALL-POX.

192. SUCH is the description of the confluent small-pox named *benign*, or *less dangerous*. It was impossible to avoid occasionally mentioning

the malignant kind, in order that, by comparing together the symptoms of each, the distinction between them might appear the more clearly. For, in every kind of confluent small-pox, there are certain seeds, as it were, of malignity; and the extremes of the benign and malignant small-pox so nearly border on each other, that it is a very difficult matter to draw the proper line of distinction between them, in any other way than by comparing the less pernicious, or benign, with the more pernicious, or malignant kind, as I have already done. But to render the distinction between them still more evident, I shall now proceed to give a particular account of the malignant confluent small-pox, employing the term *malignity* in the sense already laid down (6.), in which I have begged leave to use it in future. But as most of the symptoms belonging to the malignant small-pox have already been mentioned in several places, but particularly when treating of the malignant distinct kind (178. et seq.), and as many observations in point have at different times been thrown in when I described the benign confluent small-pox (184. et seq.), which contribute very much to the distinguishing of the malignant confluent kind, they may be now called to mind, to preclude the irksome necessity of recapitulating them here. On which account I shall omit mentioning in what manner the malignant confluent

kind commence, break out, proceed, suppurate, and dry, having already in the description of the benign confluent small-pox spoken at sufficient length of the symptoms in common to each. It will, therefore, be more eligible to give a brief description of particular species or varieties of the malignant confluent small-pox, as observed by the most experienced physicians, by which I hope the nature of the malignant small-pox may appear perfectly manifest from the marks peculiar to it.

193. But I shall commence with the worst and most destructive species of confluent small-pox, which has been admirably described by that very accurate writer Morton *. In the first stage it scarcely appears from the pulse that the patient is at all feverish, while in the meantime the greatest languor is present; the strokes of the arteries, however quick, are weak and small; the urine is thin, clear, and watery; fainting fits often recur resembling languor, and hysterical suffocation; there is present a most severe, acute, and evidently spasmodic pain of the head and loins; the thirst and heat are moderate; there is scarce any unusual nausea, vomiting, and sickness; to which symptoms if we add the others peculiar to the malignant small-pox, as a debilitating diarrhœa, obstinate watching, subfultus tendinum, or other spasmodic affections, profound coma, petechiæ, purple or black spots on the surface of the skin, or a pellucid, and as it were crystalline, miliary erup-

tion on the neck and breast, and likewise copious hemorrhages exhausting the strength more and more, the fallacious appearance of a milder disease in other respects will no longer deceive the physician.

* *Exerc. 3. c. vii. p. 59.*

194. The second stage commences with the eruption of the small-pox, which is commonly premature, as I have already said generally happens in the confluent kind (187.), or it is slower than in the distinct or benign confluent kind. But as the eruption of the pustules, which are certainly less conspicuous, is going on, the whole skin, almost in a moment, is covered with an erysipelatous redness, deep seated, and becomes swelled. Which redness, during the whole three days of the eruption going forward, continues constant, uniform, and unchanged, excepting on the face and lips, in which that swelling, during the whole course of the stage, increases and becomes more and more manifest, until the first day of the maturation. Immediately on the commencement of the eruption, nature, already in a state of languor, almost sinks under it, the strength intirely failing; the fever does not at all abate, but continues as before, or, as more frequently happens, is even aggravated with delirium, watching, hemorrhages, and other alarming symptoms, all of which increase to the last day, which, in this deadly species of the complaint, does not exceed

the conclusion of this stage, or, at farthest, the beginning of the following, or the first or second day of the suppuration. In that case, before the approach of death, the whole skin, but particularly that of the face, becoming of a leadish white colour, appears like parchment. Moreover, this very fatal species of small-pox, in which scarcely any one survives the time already mentioned *, is of very rare occurrence, and may be named with propriety *erysipelalous*.

* Morton, l. c. p. 79.

195. What happens to the whole skin in the species just described (193. 194.), in the other, which I am about to describe, occurs in the face only. For in it the skin of the face only becomes thick and raised, with a smooth, plain, erysipelalous swelling, while on the limbs and trunk the eruption of small-pox is almost distinct, but in colour, size, and figure, differs not a little from the regular and benign small-pox. For the pustules have a colour like that of measles, but less vivid; their shape is irregular, and they are much smaller. Hence, on the first day of the eruption, these small-pox cannot be distinguished from measles, unless by a certain degree of hardness and resistance. On the second and third day they still remain depressed and low, and scarcely, if at all, rise to a point. In the mean time, they become of a livid colour, as if a stag-

nation of blood took place in them. Lastly, on the first day of the suppuration, the skin of the face, as in the former case, becomes white, like parchment, being shortly succeeded by death, in the same manner as if the small-pox had run together all over the body *. This species might be called *morbillous* ; and is equally malignant as the former, and more frequent. Of this kind nearly were the *anomalous confluent* small-pox of the year 1670, 1671, and 1672, observed by Sydenham to rage in London †. But as there is some distinction between them and those of Morton, I shall therefore subjoin an account of them also. They first broke out on the second or third day, having “the appearance of a reddish uniform tumour ; covering the intire face, thicker than erysipelas, with scarcely any visible distinction between the pustules.” Upon the rest of the body were scattered here and there broader spaces, covered with innumerable acrid pustules, running together, among which, particularly on the thighs, appeared pretty conspicuous vesicles, very like those caused by fire, full of limpid serum. These occasionally bursting and pouring out a great quantity of serum, the skin underneath appeared black, and, as it were, sphacelated. When this dreadful appearance took place, —for it was of rare occurrence, and happened only when the epidemic raged with uncommon violence,—the patients shortly after expired. But

upon the eleventh day the reddish swelling of the face was succeeded here and there by a shining white pellicle, which in a short time overspread the whole. From this white pellicle shortly after proceeded a shining matter terminating in crusts, of a deep red colour like that of coagulated blood, which, as the pustule ripened, became daily blacker, until at length the whole face appeared quite black, as if it had been covered with soot. During this pestilential state, those who were affected with great severity expired, as I have already said, within a few days from the eruption. In others, not the eleventh day, which is commonly the last in malignant confluent small-pox, but the fourteenth, sometimes even the seventeenth day, proved fatal; unless the patient's death had been accelerated by an improper regimen. But if they survived this day they recovered. The fever, and all the symptoms which preceded or attended this pestilential complaint, were unusually severe, and accompanied with a more igneous and caustic inflammation. There was likewise an unusual propensity to ptyalism. The pustules were less, but so hot and inflamed, that on their first appearance it was difficult to distinguish them from *erysipelas*, or even from measles. The crusts at length falling off, they were succeeded by mealy scales, continuing longer, and leaving more disagreeable marks in the skin. At the same time a dysentery prevailed

epidemically throughout the city. The small-pox, especially those excited by too warm a regimen, were sometimes accompanied with it, which required particular attention, that it may not be supposed to have been a symptom peculiar to the small-pox.

* *Mort. l.c.* p. 80. † *Oper. sect. 3. c. vi.* p. 229.

196. The species of confluent small-pox, which follows next, is likewise malignant, but less deadly. In it the pox break out in great numbers, very small and distinct, as it were, yet everywhere adhering, and disposed without order, not even excepting those on the face. During the whole stage of the eruption they never become pointed, but only make the skin rough, like the pricks of nettles. In the beginning of the third stage they also become white, and run together so as to put on the appearance of a white membrane, especially on the face. Although less dangerous than the two former kinds, on account of their more readily suppurating and drying, still they require the ptyalism being kept up, a copious discharge of urine, and long-continued swelling of the extremities, to cause a favourable termination. But if the ptyalism, which usually commences with the eruption, be too soon stopped, or if, on its being suppressed during the suppuration, its place is not supplied with a copious discharge by the kidneys or bowels, or by a copious and universal sweat, or a permanent

swelling of the extremities is not substituted in place of these evacuations, the patient's life is hardly ever protracted to the fourteenth or fifteenth day of the disease. (*Id. ib.*)

197. In the fourth place, I shall make mention of a species of the confluent and malignant small-pox, named *sanguineous*. For the vesicles are full of blood, as it were, being at one time livid, at another having black spots, or purple ones interspersed in the empty spaces. But they appear either so from the very beginning, namely, like small tubercles full of black blood, exactly resembling the marks left in the skin by pinching, or they become so in the course of the disease, when the small-pox being collected in great abundance do not suppurate on the third or fourth day of the eruption, as they ought to have done, but become livid or bloody, while black spots, vibices, or petechiæ, arise over the whole body, which seem to be nothing else than small gangrenes, indicating the approach of death in one or two days. In that case the blood very frequently becomes so thin and putrid, as to gush from the mouth, nose, eyes, or any other passage of the body, especially the kidneys, bladder, and uterus. And that happens not only in the suppuratory stage, as I have already said, but likewise sometimes in the two former ones *. De Haën once saw the *sanguineous* small-pox in a short time become livid, attended with a very copious discharge of blood along with

the urine, and prove fatal on the fifth day of the disease. They may be named with propriety,—especially when they are livid and resemble black phlyctænæ,—*gangrenous* and *putrid*.

* Mead. *De Var.* p. 18. & Syd. *Dif. Ep.* † *Feb. Divis.* p. 100.

198. The species of confluent small-pox generally accompanied with petechiæ, sometimes with the miliary eruption, nay, occasionally combined with both, observed by Haller in the year 1735, was certainly putrid and malignant. “For several years (as he observes) the small-pox had lain dormant, attacking only a few people here and there, and in a mild way. The whole former part of the year 1735 was damp, rainy, and the north wind prevailed so much, that during the whole summer thunder was heard only once or twice, which is certainly a thing of very rare occurrence, and inundations were very common. In the month of March the small-pox broke out, and, as generally happens in our country, were of the benign kind. The number of patients gradually increased, and in the month of May, June, and August, was uncommonly great, very few escaping the complaint who had not already had it. In September the disease began to grow languid, and gradually gave place to the miliary fever. In the summer months the confluent small-pox frequently occurred; and not unfrequently, on their breaking out, black spots supervened, and in adults the miliary eruption.

There were consequently many deaths, and few of those who were severely affected escaped, and even then after a lingering illness. The patients were affected with greater severity, and for a greater length of time, being at the same time attacked with black spots, if they had aggravated the complaint by heating medicines and diet. The black spots broke out along with the confluent small-pox upon the fourth or fifth day of the complaint, and on the second or third of the eruption, in great numbers; they were plain, two lines broad, of a bluish black colour, frequently blacker than ink. They were preceded by sharp pains of the back, pleuritic stitches, and spitting of blood; and were succeeded by delirium, most severe cough, and on the eighth and ninth day by a fatal collapse of the pustules. A high degree of alkalescence in the fluids was present, in consequence of which a horrid smell, both of the pustules and breath, was occasioned. In what manner this celebrated physician rescued his patients from so terrible a complaint, we shall afterwards mention when we come to the cure.

199. The *variolaë crystallinæ*, or *lymphaticæ*, or those called *siliquosæ*, already mentioned (183.), sometimes take place in the confluent species. Sagar, in the fatal variolous epidemy, of which he has left us a description, mentions, "that several of the lymphatic pustules sometimes run together, forming blisters as big as nutmegs." Others call

them *siliquosæ*, but he has given them the name of *bullatæ*. He seldom saw them filled with pellucid watery with lymph, but generally that which was semi-opaque, or whitish, or of an opaque carnation, or dark-brown colour; or, as often happened, he found them flaccid and empty. Moreover, he affirms, that he never saw these *variolæ bullatæ* by themselves in any patient, but interspersed among the *verrucosæ*, *herpetosæ*, and purulent ones, separately, or altogether *. He grants, however, that all the stages in them were unusually long, especially the suppuratory one, though in fact that stage could scarcely be said to take place at all, as they do not terminate in suppuration. For the blisters being either eaten through by the lymph contained in them, or bursting, put a period to the disease †. It is surprising, that several labouring under the lymphatic small-pox, attended with suppuration, who remained inactive and regardless of themselves, without either fever, swelling of the face, or any ptyalism, were sometimes observed to die all of a sudden from some secret cause ‡. It probably proceeded from a metastasis of the variolous matter.

* *Dis. De Var. Igl.* p. 10. † *Id. ib.* p. 18. ‡ *Id. ib.* p. 21.

200. All the species of the complaint already mentioned (193. to 199.), even after the eruption of the small-pox, were attended with a constant fever, a weak and quick, or rapid pulse, dry

tongue, heat, though not to the touch, delirium, coma, watching, subfultus tendinum, and other pernicious symptoms of that kind, throughout the whole second stage ; for, as I have already remarked (174.), on the eruption happening, it does not cease or remit in the benign or intermediate small-pox (182.). In these, as well in the other species of the confluent small-pox, nature endeavours to free herself from the variolous poison, and the fluids, which it has assimilated to itself, by the ptyalism, or diarrhœa, or by the sweating, or discharge of urine : but she does not always attain her end ; for frequently all her endeavours terminate in an unavailing and frequent desire to make water, which is at length succeeded by a fatal ischuria.

201. But when they come on like the benign small-pox (186. 187.), which sometimes happens, putting on a fallacious appearance, their secret malignity is manifested by the immoderate diarrhœa, by the colliquative sweating, delirium, want of sleep, and other malignant symptoms ; or by petechiæ and miliary vesicles occupying the interstices of the small-pox, which, as I have already said (180.), break out, at least on the second day of the eruption, on the neck, breast, and arms. Besides, as it has been already shewn (182.), that there is sometimes an intermediate species of distinct small-pox between the benign and malignant, the confluent kind in like manner sometimes hold

an intermediate rank between the benign and malignant. In this species the eruption is not so rapid, and nature, for two or three days from its commencement, seems to hold a doubtful contest. In the mean time the fever remains stationary, as it were, accompanied with watching, delirium, and other symptoms, with which the first stage was attended. After this, however, nature prevailing, the fever intermits, or at least experiences a manifest remission, with all its symptoms; the pulse, heat, and appetite, return to their natural condition. But all the variolous matter not having been secreted and expelled, partly on this account, and partly on account of the incipient suppuration, the fever is aggravated in the third stage, appearing again like an acute continued fever, which, however, in the last stage, is changed into a remittent one of a milder kind. But because in the second stage the whole variolous matter is not forced to the skin, and therefore the fever does not intirely cease, fresh eruptions appear daily in various parts of the body. For all the pustules do not break out together in this species; but on the first day they overspread the face and hands, and on the second the arms and trunk, and, lastly, the legs and feet. Nay, sometimes passing the trunk of the body, the face and limbs alone are covered with very thick pustules, which almost adhere to one another. Sometimes,

among the pustules that first broke out, other fresh ones arise, so that such as appeared distinct on the first day become confluent or coherent on the third, of irregular size and shape, neither altogether round, nor of a vivid colour, like the regular ones. On the following days their bases are more slowly enlarged, and become peaked, being in some measure depressed, and opposing less resistance to the touch. But on the third day of the eruption, before the fever returns, the ptyalism supervenes, though without any eruption, especially if it be summer, on the fauces and tonsils, or mouth, exciting a flow of saliva. On the other hand, if it be winter, when the skin is constricted with cold, pustules break out in these parts also, exciting frequent spitting and cough*.

* Morton, l. c. p. 82.

202. Sometimes these intermediate small-pox (201.), as they are called, on the poison being expelled by the eruption, or at least being much diminished, the blood being thus purged of it, are changed into completely benign ones. Then, although the eruption has been difficult, they acquire a figure completely round, and are surrounded with a red margin; and although, on the first day of the suppuration, several of them here and there shew little pits in the middle, yet, on the third or fourth day, they rise, become turgid and peaked. Lastly, on the fifth day, being now filled with pus, they begin to grow yellow, and

dry. And thus the patient, without any ptyalism, secondary fever, or swelling of the extremities, though at other times very necessary, has a successful recovery *. But if an imperfect expulsion of the variolous matter takes place, nature endeavours to throw off the remainder by the salivary glands. But the pustules are then slower of attaining maturity: in consequence of which the stage of maturation is of very uncertain duration, being sometimes extended to four, six, eight, or twelve days, sometimes even beyond that period. In which case the pustules appear uniformly depressed in the middle, nor are their margins red, although they are afterwards gradually raised and turgid. They nevertheless remain whitish and pellucid, as it were, because they are not filled with pus, but limpid water, or air. Lastly, on attaining the proper size, some pus is formed in them, making them appear of a yellow colour; they are too flaccid, however, and most of them, particularly on the joints, are confluent. But as they very slowly undergo suppuration, so they are very late of drying, and frequently leave foul cicatrices upon the skin †. Such is the efficacy of the ptyalism, that frequently by means of it the whole variolous matter is carried off, while the patient remains free, both from the fever and every other bad symptom.

* *Id. ib.* p. 104 † *Id. ib.*

203. I have already, in a great measure, enumerated the symptoms that occur in the third stage of the malignant confluent small-pox. I considered it as particularly deserving of notice, that the species of the small-pox, which in the second stage is attended with more malignant symptoms (194.), and, on account of the universal redness of the skin, may be called *erysipelatous*, generally occasions death on the first or second day of the suppuration * ; and that the redness at that time is converted into a very disagreeable whitish colour, almost universally diffused over the body. I shall now subjoin some remarks upon the species, which, on account of its great resemblance at first to measles, I have said may be named *morbillous* (195.). Although the pustules upon the breast and other parts of the body appear like distinct ones, and are white in the middle, yet in the third stage they are not surrounded with a red circle, like the true distinct ones, nor are they raised, but very slightly ; and so far are the intermediate spaces from being red, that they are livid, or pale. The pustules, therefore, remain flat and depressed. But the cuticle, which formerly seemed to separate on their tops, becomes again glued to the skin, like dry scales. It is in common, however, to all the species of the malignant confluent small-pox, that the ptyalism which accompanied them in the second stage, in the third is very slight, and soon

ceases, without swelling of the head, fauces, or extremities. There next supervenes a troublesome, frequent, and generally fruitless desire to make water. When this happens, the patient seldom survives the second or third day of this stage †.

* *Id. ib.* p. 102. † This desire to make water is considered generally as a fatal symptom. But Ludwig (*Inst. Med. Clin.* § 198.) observes, that it ought not always to occasion apprehension, “provided the other symptoms are favourable, especially if the urine be not altogether watery, but somewhat tinged, and draw off part of the morbid matter.” But the desire to make water in that case does not prove unavailing; and it was of this kind I spoke in the text.

204. If the patient, however, is so fortunate as to support the disease,—which indeed very seldom happens,—the pustules never arriving at maturation until the commencement of the fourth or last stage, which is then finished in ten or twelve days; he is constantly troubled with fever, and continues to be harassed with watching, delirium, fainting, and other bad symptoms with which he was already affected, until the fever, by the aid of art and nature together, is removed, which happens probably on the seventeenth or twentieth day, and the health is at length restored. But if the hemorrhages, which generally happen before, still continue, the patient's death must unavoidably take place very soon. Others linger in a state of hectic fever, or slow consumption, for thirty days, but at length are carried off

in consequence of sphacelus of some internal part suddenly coming on *. I pass over the other symptoms which belong to the third and fourth stage in every species, as being already either sufficiently pointed out in the account of each of them, or not differing from such as were detailed in the history of the benign confluent small-pox (189. to 191.). I shall only observe, that in some epidemics, not only does one kind of small-pox appear before another, but that sometimes all the species appear separately; nay, are so blended together, that both coherent and confluent small-pox, the species called crystallinæ and filiquosæ, and the morbillous, erysipelatous, and sanguineous species, &c. sometimes are observed in the patient at the same time, which Sagar affirms to have observed to happen in the epidemic of 1776.

* Morton, l. c. p. 103.

SOME SYMPTOMS DESERVING MORE PARTICULAR NOTICE, IN
COMMON TO THE DISTINCT AND CONFLUENT SMALL-POX.

205. AMONG the chief and more severe symptoms which supervene in small-pox, is ranked *phrenitis*, the presence of which is judged of by the patient's starting up with great violence, incapable of bearing the heat of the bed, raging with such fury, that he can scarcely be restrained by force. This has been observed to happen in every stage of small-pox. According to the time of its happening it is ascribed to various causes.

In the first stage, or during the eruption, it is generally occasioned by plethora, excessive heat of the blood, by its motion being quickened by the fever, by the inflammatory diathesis, and by the variolous acrimony irritating the brain. In the suppuratory stage it is caused by excessive inflammation of the pustules,—especially when they are numerous,—by very uneasy pain, derangement of the nerves, watching; by the striking in and metastasis of the virus. From similar causes sometimes arises *coma somnolentum*, or *letbargy*, that profound sleep from which the patients are roused with difficulty, and into which they shortly relapse. I have already frequently remarked, that red, purple, or livid spots, or petechiæ, spring up among the small-pox, which seem to be sometimes primary, and therefore combined with small-pox; at other times secondary, and the effects or symptoms of the complaint. The first happens principally when the petechiæ prevail epidemically, or are stationary; for then, whatever diseases happen during their prevalence, or subsequently, and likewise small-pox,—if they come on at the same time,—are combined with the petechial disease, and partake in some measure of its nature. The second, however, takes place when the small-pox are conjoined with that dyscrasy of the blood, which is prone to occasion echymoses, vibices, weals, and petechiæ, or when they are treated improperly

with the warm regimen and alexipharmacs, by which the blood is overheated, and forced with violence into the capillary vessels. What we mention of the petechiæ may be understood also of the miliary eruption, and other similar exanthemata, which in like manner may be combined with small-pox, or supervene upon them as symptoms. It is proper, however, to observe also, that sometimes small black spots, not larger than pin-heads, appear on the tops of the pox, which are often flat in the middle. These arise either from the gangrenous nature of the varicellous matter, or from the bad condition of the blood, or from employing an improper regimen, and must be considered in fact as small gangrenes. When they proceed from the latter cause, by changing the regimen into a more proper and cooling one, their black colour is gradually changed into a brown, and, lastly, into a yellow, which is the mark of a proper and mild maturation having taken place.

206. Nor is it uncommon for a difficult and imperfect eruption of the small-pox to take place, or for those which have already appeared to become depressed and flaccid, or to strike in, as it is called. This evil is occasioned either by languid vital power, or by the imprudent exposure of the body to cold, or by ill-judged bleeding, purging, or any other excessive evacuation; or by the patient's continuing too long in the erect

softure, or out of bed; or by fainting, sudden terror, bad news, and similar causes, which are apt to weaken the strength, or constrict the vessels of the skin, and force the fluids to the internal parts of the system. From whatever cause this proceeds, it gives rise to dangerous, or even to fatal symptoms, proceeding from the variolous matter being retained in the internal parts of the system, or forced thither. From this metastasis * often proceeds a diarrhœa in adults, which not infrequently proves fatal. It cannot be denied, however, that sometimes the eruption of small-pox is retarded by too violent motion of the blood, and excessive fulness of the vessels, in some measure interrupting its circulation; and that the matter prepared in the pustules by the heat of the air, bed-chamber, bed, or regimen employed, is so attenuated and dissolved, as to be very easily absorbed, and forced to the internal parts, leaving the pustules flaccid and empty.

* The pus, when absorbed and carried to the brain, occasions phrenitis, convulsions, and coma; when carried to the lungs, suffocation, with a weak or intermitting pulse, especially during inspiration; in the eyes it gives rise to loss of sight, and disorganization of their texture. Sagar, *De Var. glav.* p. 20.

207. A painful suppression, or retention of the urine, also is a frequent symptom in small-pox of every kind. For it is depressed either on account of a defective secretion taking place in the kidneys, or, when already secreted, it is retained on

account of the bladder not excreting it, whether that proceeds from resolution of the bladder, or from spasm of the sphincter, or from swelling of it, or from inflammation of its neck, or that of the urethra and neighbouring parts, or from the passage being obstructed by mucous and purulent urine. Young people, in particular, are liable to this inconvenience. Hæmaturia, also, or a discharge of blood from the bladder, which is generally attended with imminent danger, occasionally happens at any period of the disease. Young people, or such as are in their prime, and have been accustomed to indulge in wine and fermented liquors, are principally liable to this dangerous accident. They also, tho'gh rarely, expectorate or cough up blood. In others, however, hemorrhages from the uterus, nose, intestines, and other parts, supervene, all which evacuations, when they proceed from excessive tenuity and dissolution of the blood,—as is generally the case,—are always the precursors of the patient's death. It is proper, however, not to consider,—as is commonly done,—the flow of the catamenia, occurring both in the first and subsequent stages of the disease, or in patients who have ceased to menstruate, as a dangerous symptom: for this evacuation, provided it be not excessive, has often been observed to take place without injury.

208. The eyes sometimes are in no small measure affected by the small-pox. Sometimes the

variola matter infects the lachrymal lymph, causing pain, redness, heat, and watering in them: at other times the eye-lids are so much swelled as to intirely close up the eyes. But these appear slight inconveniences. It is a great deal more dangerous if the pustules appear on the bulb of the eye itself; for then they occasion ophthalmia, pain, abscess, hypopyum, staphylo-ma, leucoma, and cicatrices, which frequently prove indelible, nay, they frequently destroy the whole bulb, in such a manner as to deprive the patients of their eyes. Nor do the ears escape free. If the variolous matter attacks the inside of them, otalgia, inflammation, apostema, open ulcers, deafness, and other very obstinate affections of these parts, are occasioned. But among the symptoms in common to every kind of small-pox, we must not omit the vomiting, of which mention has several times been made in the description of the disease. It is generally occasioned by the febrile commotion in tender and delicate habits, or by the variolous poison irritating the nerves of the par vagum and membranes of the stomach in the first stage of the complaint. When it proceeds from this cause, as soon as the whole virus has broken out in the form of pustules, it usually ceases intirely. It is sometimes cherished by fordes in the stomach, or by a collection of bile, by vitiation of the ingesta, or by worms. In that case it is preceded by dyspep-

tic symptoms, such as a bad taste in the mouth, foulness of the tongue, loathing of food; bile, or other corrupted fluids, and worms, are either actually expelled, or their presence is evinced by the symptoms peculiar to them, as itching of the nose, sneezing, flushings of the face, starting during sleep, gnashing of the teeth, pains of the belly, and the like. Not unfrequently to these symptoms is superadded, a fetid diarrhœa, of a cineritious, green, yellow, variegated colour. When the vomiting seems to arise from this, it appears that the small-pox are combined with dyspepsy, proceeding from a gastric colluvies and worms, and that many anomalous and unusual symptoms are attached to the complaint, which ought by no means to be ascribed to the variolous virus.

209. Intermitting fevers, likewise, are sometimes combined with small-pox, requiring a particular treatment, as Meade has very properly observed *. Sometimes, also, a cough is added, generally as an accessory symptom. For it is by no means peculiar to them, but comes on either at the beginning, during their progress, or towards the termination of the complaint. In the first case, it is either catarrhal, or a symptom of peripneumony; in the other, it is caused by the pustules besetting the larynx and fauces. In the third case, it proceeds from the variolous matter being carried to the lungs. There is sometimes

likewise sneezing, which is principally excited by the pustules affecting the inside of the nose. I consider this, however, as of very rare occurrence, although it was observed by Sagar †. In the epidemic small-pox which he has described, towards the end of the third, or about the beginning of the fourth stage, he found an uneasy pain of the bones take place in all the limbs, lasting twelve, or, at most, twenty-four hours. Infants, who were principally troubled with this symptom, shrieked aloud, tossed themselves about, and were very restless and peevish during the whole time of its prevalence. After which the pain disappeared, and was succeeded by an œdematous swelling of the limbs, which was favourably substituted in place of the swelling of the face. But when the pain exceeded the period already mentioned, it was a certain proof of the immediate approach of death. Sagar also observed, that in some patients the variolous matter was of so caustic and corrosive a nature, as to completely destroy the fauces, uvula, velum pendulum, palate, jaw, and nostrils, and to cause the very teeth to fall out of their sockets ‡. Such are the principal symptoms, which, when they occur in small-pox, require particular attention to regulate the method of cure

* L. c. c. iv. † L. c. p. 19. ‡ *Id.* n. 20.

210. Lastly, it remains for me to make some observations concerning the symptoms themselves.

For these must not only be considered, each of them separately, as has already been done, but also taken conjointly, that the peculiar nature of the disease, on which the method of cure principally depends, may be distinguished with more certainty. For when they are such as shew any deviation in the complaint from its regular, mild, and benign disposition, on being considered, they will be found to be not of one kind, but manifold. They are principally divided into three heads, viz. comprehending such as are *inflammatory*, *nervous*, or malignant and typhous, and *putrid*. Symptoms of the first stamp are generally observed in persons of strong firm fibres, whose system abounds with much dense blood, and who are addicted to rich living. In such patients the variolous contagion excites a very violent febrile motion, accompanied with a quick, full, hard, tense pulse; violent, great, or difficult respiration, or small, short, and frequent; unusual redness of the face and eyes; excessive heat and thirst; very acute pain of the head, back, loins, and members; dry red tongue; very deep coloured urine; and quicker and fuller vibrations of the carotids and temporal arteries. Hence frequently the lungs, brain, eyes, fauces, and other parts, are attacked with no slight inflammations. The blood which is drawn, has a firm, compact, strongly-adhering crassamentum, without the se-

rous part, covered with a red or yellow, or reddish white, tenacious inflammatory * crust †.

* From the white, dry, swelled, hot tongue, and from its being marked with pimples rising above the surface, Sagar contends, that the inflammatory crust, in the blood which is drawn, may be foreseen. † Huxh. *Essay on Small-pox.*

211. The opposite of these (210.) are the symptoms we have named *nervous*, or *malignant*, and *typhous*, namely, such as occur in *slow nervous fevers*: as when the patient, before being attacked with the small-pox, is long in a feeble state, and, after being attacked, becomes much more languid; when the fever is not great; when the pulse is weak, small, quick, and irregular; when there is dejection of spirits; when the face is pallid; when the looks are haggard, and sorrowful; when the urine is watery and crude; when the thirst is slight; when the heat is moderate, and sometimes less than natural; when the head is heavy, and apt to be affected with giddiness; together with trembling of the limbs, nausea, an inclination to vomit, sickness, coma vigil, slight delirium, and universal lassitude. When the disease is more malignant, so much are the sensibility and irritability blunted, that no sickness, vomiting, or restlessness, harasses the patient. Frequently, in such a state of insensibility, six, seven, eight, or nine days are spent. At length the variolous eruption appears, being generally

of a bad kind, palish, crude, depressed, and lingering, and never becoming properly ripe. For the pustules remain, flat, flaccid, and almost empty, or run into blisters, filled with a crude, aqueous, ichorous fluid, until towards the end of the disease, those on the face terminate in a disagreeable black crust, or one of a dirty ash colour and cadaverous appearance, which adheres fast to the skin.

* Huxh. l. c.

212. Lastly, we pronounce the presence of the putrid symptoms, when the blood in the small-pox is so thin and dissolved, that it seems almost to be verging on putrefaction. Then indeed the symptoms of the inflammatory diathesis are not present (210.); in place of which all the symptoms manifest a putrid tenuity, and ready corruptibility of the fluids. The nervous symptoms (211.) are either intirely wanting, or, if they are present, they are conjoined with symptoms of alkalescence and dissolution of the texture of the blood. The breath, sweat, and urine, emit a bad smell; the pulse is languid, yielding to the slightest pressure, and softly rising again; petechiæ, ecchymoses, and weals, appear on the skin; the body is emaciated and the strength exhausted with immoderate hemorrhages; the pustules become black and gangrenous, and frequently, on the efflorescence taking place, they appear sanguineous, and are apt to discharge

blood. That happens principally when the pox are very small and distinct, though attended with symptoms of malignity, or when the heating regimen has been employed, or when they take place in a scorbutic dyscrasy of the fluids. Instances are adduced in par. 197. 198. But care must be taken not to confound these with the watery, ichorous, and crystalline small-pox, and the species called *siliquosæ* (199.), which must be intirely separated from the genuine putrid kind. These distinctions, therefore, being pointed out by their symptoms (210. 211. 212.), require the greatest attention to prevent our committing any serious mistake in administering the proper remedies. (*Id. ib.*)

THE PROGNOSIS.

213. BUT it is not enough for the physician to recognise diseases by their peculiar marks, and to employ a proper method of cure in them; for frequently diseases, although their nature be known, elude every attempt of art; while, on the other hand, patients, even when the nature of the disease is not known, recover either by the efforts of nature alone, or by the accidental aid of medicine. Hence it happens, that from the favourable or unfavourable issue of the disease, we are intitled to draw no conclusion concerning the physician's skill. Sometimes the most judicious practitioners are disappointed of their ex-

pectations by a fatal termination happening, while the most ignorant at times exult in the success of their method of treatment. But the principal merit of the practitioner lies in foreseeing with how much or how little danger the disease is attended, or what is likely to be its termination, which will appear to no one who has not had the most extensive experience. Whoever, then, is desirous of rising above mediocrity in the profession, ought to excel in this department of the practice. As small-pox, therefore, are of a manifold nature, and are not attended with an uniform degree of danger, nor always terminate in the same manner, it will be neither unprofitable nor superfluous to present the student with the result of the numerous observations made by physicians on the subject of the prognosis. But as these prognostics are of two kinds, namely, either such as point out the nature of the future disease, or such as inform us of the nature, and what will be the issue of the complaint when already present, they are properly distinguished into *preceding* and *concomitant* ones. I shall speak of the former in the first place, and next turn my attention to the latter.

214. We must first inquire into the patient's health previous to the complaint; whether it was good, whether he was of a sound habit of body, and whether he used to lead an easy kind of life. In that case we have reason to expect

small-pox of a better kind, as being generally good or bad according to the condition of the body and fluids previous to their appearance. On the other hand, a vitiated state of the fluids, the debility which is left by previous diseases, bad living, grief, intoxication, loading the stomach with too much meat, particularly flesh and the farinacea, stumous tumours, a scorbutic, venereal, herpetic, scabby, or phthifical taint, and the complaint being combined with worms and other diseases, give us reason to suspect the dangerous nature of the small-pox. I say give us reason to *suspect* it; because from a bad habit of body, scrofula, spina ventosa, and other similar affections, the malignity of small-pox cannot to a certainty be foreseen; as the complaint has sometimes been observed to occur in these habits in a very mild degree. Hence De Haën * drew a proper conclusion, when he observed: “ A bad predisposition of the body may either increase the danger of the disease or not; but it is a matter of uncertainty.” But a habit of body moderately fat †; a soft white skin; a fresh colour, a serene, chearful face; lively, but not too sparkling eyes, generally promise a mild disease; while a malignant one may be expected, if the patient is of a slender make, if his skin is dry and hard, his complexion dark, his appearance grave and mournful; if his eyes are languid

or red, his hair black, and his voice rough and hoarse. Hence the age better calculated for taking the complaint is that of three or four years, or, at most, the period included between the last-mentioned time and fourteen, than that which is too young and tender, or advanced life, or, which is worse still, old age. It is of great consequence to be born of parents who have had the benign small-pox, not to labour under plethora, nor to be exhausted with hemorrhages; otherwise small-pox of a bad kind may be apprehended: although Meade † has sometimes observed the benign small-pox supervene on preceding evacuations. Nor are they to be expected to turn out better in pregnant or puerperal women, or those whose menstrual flow is irregular or difficult, or in such as are newly married ||. A salubrious state of the air, likewise, in which malignant or putrid diseases are not common, contributes greatly to the benignity of the small-pox: for if preceding warm and moist seasons have rendered the body unhealthy, and predisposed the blood to putrefaction; or if exanthematic, malignant, putrid, or inflammatory disorders already prevail, it cannot but happen that the small-pox will partake somewhat of their malignant nature.

* *Rat. Cont.* T. i. c. v. † Young people, who are very fat, when seized with small-pox, are said by Varnier (*Journ. de Méd.* T. v. p. 152.) to be in great danger, because the whole fat is converted into pus, and gangrene and putrefac-

tion very quickly follow. ‡ L. c. c. iv. || Rosen, *Malad. des Enfants*, p. 130. All the pregnant women affected with small-pox, whom Varnier attended (l. c.), experienced abortions.

213. We must then observe whether the small-pox prevail sporadically or epidemically. The former are generally milder than the latter. If they are epidemic, we ought next to inquire into their nature, to ascertain whether it be benign or dangerous. For some epidemics are very benign, while others are malignant and bad. Generally in salubrious states of the air they are of a milder disposition, especially if a short time has elapsed since the last epidemy that prevailed; but more malignant, if the small-pox have not appeared for some time. It is better to be affected with small-pox at the beginning, or towards the end of the epidemy, than during its progress, or at its height; during the spring-time than in a warm summer, or cold winter*; when the body is sound, and the belly not loaded with fœces, than otherwise. For the epidemic small-pox, like measles, appear generally in February and March, rage with more violence in the summer-time, and become milder in autumn. Hence they are generally more benign at the beginning and towards the end. The distinct ones, also, are generally free from danger, if they be properly treated, and are not malignant. The confluent,

coherent, and mixed species, especially when malignant, are attended with more danger. On the whole, if symptoms of the inflammatory diathesis are present (210.), if the strength is not impaired; and there are no marks of malignity, however violent and dangerous the disease is, it is to be hoped that it may be very much alleviated by a proper method of treatment. On the other hand, when the strength is insufficient, as happens in the small-pox attended with nervous symptoms, or in the malignant kind (211.), or in the putrid (212.), every attempt of art is rendered abortive †.

* Ludwig, on the other hand, is of opinion, "that the small-pox in summer and winter are generally milder than in spring or autumn;" (*Inst. Med. Clin.* § 182.). It is proper, therefore, to attend to the nature of the season and prevailing epidemic. For no fact with regard to diseases holds so universally, as not to admit sometimes of an exception. † Störck, *Med. Pract.* P. I. p. 278.

216. When treating of the history of each species, and enumerating its peculiar marks, I did not omit likewise occasionally touching on such as indicate a milder or more severe complaint, and a favourable or unfavourable termination. It is unnecessary, therefore, to recapitulate here all that has already been said on the subject, as the observations formerly made may be consulted by the student. I trust I then sufficiently explained such of the confluent species as

are attended with greater danger than usual; namely, the *erysipelatous* (193. 194.), *morbillous* (195.), *coherent* (196.), *sanguineous*, *gangrenous*, and *putrid* kinds (197. 198.), the *crystalline*, or *lymphatic*, and *siliquosæ*, &c. (199.). With regard, however, to the *sanguineous* species in particular, it is considered as being much more dangerous than the *crystalline*; but the *verrucosæ* are more dangerous than the *crystalline* pox, when they are truly malignant; because the *crystalline* species never suppurates. It may be observed, however, that they sometimes are carried off by the cutaneous perspiration, or that the thicker matter may be excreted along with the urine discharged. But the *verrucosæ* are said to occasion greater danger, because they cannot be resolved either by suppuration, or by other excretions. Hence Rhafes * and Meade † have pronounced them to be fatal: this, however, I suppose, must be understood of the malignant kind.

* *De Var.* c. viii. † *L. c.* c. 3.

217. Having previously ascertained these points in a general way, we must next proceed to those marks which contribute particularly to the prognosis in the several stages of each kind. In the first stage there is seldom said to be danger, unless it arise from dentition, or other diseases with which the complaint is conjoined. In it, slight pain of the head and back; gentle heat; moderate thirst; an equal pulse, differing little from

the natural one ; sufficient strength ; none, or little vomiting ; easy, gentle respiration ; calm and refreshing sleep ; no sickness or restlessness ; a tolerably good appetite ; and no uneasiness in the abdomen ; point out that the disease will prove extremely mild (169.) †. The more the disease departs from this very mild kind, the more severe is it. Hence acute pains of the head and loins ; great thirst ; profuse sweats ; frequent and very troublesome vomiting ; restlessness and sickness ; watching, or deep sleep ; strong pulse, varying, or, what is worse, small, irregular, and weak pulse, with loss of strength, tremors of the feet and hands ; gripes ; nausea ; loathing of food ; difficult, anxious, and broken respiration ; discover the severity and malignity of the disease ‡. But we ought to attend to the fixed pains, resembling pleuritic, colic, ischiatic, and other such pains unconnected with the symptoms of small-pox. For I have frequently observed them not only retard the eruption sometimes to the ninth day, but also preceding the most malignant and fatal kinds of small-pox. With regard to want of appetite, however, provided other bad symptoms are absent, we need not be much concerned ; for it often happens that very mild small-pox occur, during the whole of which the patient hardly takes either food or drink, except a very little wine, without receiving any injury. With regard to the fever, we must guard against the de-

ceitful appearance of mildness it puts on, at the beginning, and turn our attention to its progress from the beginning to the commencement of the eruption ||. According to the longer or shorter duration of the first stage, Home affirms § that the nature of the disease is either benign or malignant; but that by no means holds universally. It applies rather to the distinct kind. I have already (193.) enumerated, among the worst symptoms of the complaint, the want of vomiting and restlessness, and a certain appearance of tranquillity, which Morton, in the same manner, considered to be bad. But these prognostics are confirmed only when the patient is not sensible of the violence of the disease, on account of his extreme languor, and lies in a state of stupor, oppressed with coma; while the pulse is weak, the urine is passed thin, and the other bad symptoms, elsewhere enumerated (193. 194.), occur. But that urine which is of the colour of canary wine is considered as being of the best kind ¶; especially when it has a smooth, white, copious cloud floating in it, or deposits a similar sediment, without any other bad sign. In this stage, also, or at the beginning of the following one, sometimes petechiæ and purple spots break out, and also hæmaturia, or hemoptosis, come on, always portending an unfavourable event, but sometimes proving so fatal that the patient expires before the eruption, or when it has scarcely made its

appearance **. That happened chiefly in the epidemic small-pox of the year 1681, in which purple spots appeared before the eruption, and hastened the patient's death ††.

* Schacht, l. c. c. xiii. § viii. † Lobb, *On Small-pox*, Introduct. Rosen, *Malad. des Enfants*, p. 130. ‡ *Id.* l. c. || Azzoguid. l. c. p. xiv. § L. c. ¶ Lobb, l. c. ** Syd. *Dis. Epist.* p. 404. †† *Id. ib.*

218. In the other stage, according to the diversity of the symptoms, the complaint is attended with various degrees of danger *. A premature eruption, or that which is conspicuous, thickly spread, consisting of small pustules, appearing within sixty hours, particularly on the face, is considered as affording a bad sign; as also, when the pustules run together, or are attended with extreme itching; and *vice versa* †. Generally the fewer they are on the face, the milder do they prove ‡. If at the beginning of the eruption a looseness occurs ||, it is a bad sign; especially in grown up people affected with distinct or confluent small-pox; although this by no means holds invariably. For sometimes the gastric colluvies and vitiated bile, which would have aggravated the disease, are advantageously drawn off by the looseness. The more the pustules are depressed, and the less the fever abates after the eruption, the more imminent is the danger; and otherwise. The delirium which follows the eruption, and, still more, phrenitis, su-

pervening on the fourth day of the eruption, are very alarming §, as being the forerunner of a fatal termination ¶. Nor must we place much reliance on the remission of the delirium, if the fever continues with the same violence **. In this same stage, inflammation of the fauces, difficult deglutition, frequent, anxious, and interrupted respiration, indicate that the internal parts are affected, not without danger ††, particularly if the patient be forced to breathe with his mouth open, in consequence of the stuffing of the nose. (On the other hand, the nose and fauces being clear, and few pustules taking place around the former, afford a favourable presage ‡‡.

* Schacht, l. c. c. xxii. † Rosen, l. c. ‡ Home, l. c. § Rosen, l. c. ¶ Home, l. c. ¶ Meade, l. c. c. 3. ** Home, l. c. †† Lobb, l. c. p. 53. ‡‡ Rosen, l. c.

219. The prognostics in the third stage are derived principally from the manner of the suppuration. It is most favourable and consistent with the laws of the system, for the suppuration to happen on the seventh, eighth, ninth, tenth, and eleventh days, in the pustules of the face; and next upon the other parts of the body on the twelfth and thirteenth day, with a sense of pain, and great sensibility in the parts where the pustules are; and it is a good sign for the pustules to become turgid, tense, and painful *. Hence we have more reason to entertain hopes the ripeness of the pustules are †, and the redder the spaces be-

tween them are, being of a colour like that of damask roses †. On the other hand, if the pustules, or intervening spaces, are pale, or livid, or they are flaccid and free of pain, or depressed, or black in the middle, or attended with blackish purple petèchiæ, they afford a proof that death is about to take place ||. But white, viscid, slug-gish, yellow pus, completely filling the vesicles, is a favourable symptom; while that which is brown, thin, or too soon becomes yellow, or is too scanty, is unfavourable. The swelling of the palpebræ about the eighth day, and of the head about the beginning of the ninth, and its being continued to the eleventh, affords a favourable prognostic §.

* Lobb, l. c. p. 49. Rosen, l. c. † Meade, l. c. c. iii.
 ‡ Sydenh. Mort. Hom. l. c. || Home, l. c. Rosen, l. c.
 Sagar, l. c. p. 20. § Lobb, l. c. p. 50.

220. The face also has its peculiar marks. It is a favourable symptom, when it is uniformly swelled, so as to shut up the eyes, or scarcely swelled at all, as generally happens in the mildest small-pox. But its being very thickly covered with pustules, without being attended with any swelling, or only with a swelling of the lips and palpebræ *, is a bad sign. If, however, on a detumescence of the face taking place, or the ptyalism ceasing,—which generally happens on the eleventh day,—first the arms and hands, and then the legs and feet, do not fall successively, it

is a proof of almost certain death †. The collapse of the pustules, unless it be succeeded by the ptyalism, or some other copious excretion, as well as the want of the ptyalism, affords an unfavourable prognostic in the confluent species in grown people, as it is exceedingly necessary and useful, not only in the confluent small-pox, but does not want its use even in the distinct kind, when it supervenes in it, as it sometimes does. The gnashing of the teeth, also, in infants and children, both when awake and asleep, or any other convulsive motion, gives just reason for apprehension ‡. In the distinct small-pox, the eighth day generally proves fatal; but in the confluent, as I have already mentioned, the eleventh ||. But we may learn much sooner that there will be imminent danger on the eleventh day from the smallness and number of the pustules only; as the danger, or fatal event, frequently seems in a great measure to depend upon the multitude or paucity of the pustules §. As the flow of saliva, commencing with the eruption, and continuing to the present period to run off easily and thin, in the confluent small-pox of adults; or in the small-pox of children there being none, or very little, gives grounds for favourable expectations,—so its flowing with difficulty, being viscid, and quickly ceasing, or suddenly suppressed, threatens destruction ¶. But both in the distinct and confluent small-pox, the

greatest danger is to be apprehended from the suppuratory fever. If it is violent, accompanied with headach, loss of strength, redness of the eyes, anxiety, restlessness, delirium, oppression and straitening at the chest, it announces almost certain death **; while it is safest, during all this stage, for there to be present a slight fever, or tranquil sleep, and easy and regular respiration ††.

* Rosen, l. c. † Syd. Mor. Hom. Rosen, l. c. ‡ Sagar, l. c. p. 55. || Syden. *Dis. Ep.* p. 407. § *Id. ib.* p. 404. ¶ Mort. Ros. Schacht, l. c. § xxix. ** Syden. Rosen, l. c. Schacht. †† Rosen, l. c. Baglivi observes: "One of the best symptoms in small-pox is the respiration being good, although the other symptoms are severe, as I have repeatedly observed." *De Respirat. in Acut.*

221. As in the two first stages, so in the third, a loosening, unless proceeding from a collection of vitiated chyle in the *primæ viæ*, is generally condemned as hurtful in the distinct and benign small-pox*. But in the confluent small-pox of children, it not only prevails during almost the whole course of the disease, as I have remarked, but generally proves serviceable by withdrawing some portion of the redundant variolous matter. If the ptyalism, on cold being caught, is suppressed, it is a dangerous sign. At this time, also, I have already pronounced the pain in the bones, which sometimes supervenes, with great restlessness, if it exceeds twenty-four hours, salutary; but, when prolonged beyond that period, fatal,

as we learn from Sagar †. Likewise hiccup occurring about the end of this stage, or about the beginning of the following, or ulcers arising in the mouth or fauces, are not free of danger ‡. Shivering also, or rigor, occurring at the height of the disease, or during the secondary fever, is a bad prognostic ||.

* Lobb, l. c. p. 50. † L. c. p. 19. ‡ Lobb, l. c. p. 54.
|| Huxh. *De Aëre et Morb. Epid.* T. 1. p. 37.

222. Moderate heat, both in the third and fourth stage, is ranked among the salutary symptoms. The belly on the twelfth or thirteenth day, becoming moderately loose, but not so as to exhaust the strength, both in the confluent small-pox, and in the malignant distinct kind, contributes very much to alleviate and resolve the disease *. On the other hand, an immoderate looseness with gripes affording no relief; stools mixed with pus or blood; swelling and pain of the epigastrium, indicating gangrene of the stomach or intestines; obstinate costiveness, likewise black tongue, covered with aphthæ, thirst, and drinking with extreme avidity; denote great and immediate danger. It is a fatal symptom when the urine is voided sparingly, thin, and pale; when the patient cannot make water; when delirium and convulsions are present; and, lastly, when the strokes of the carotid and temporal arteries are quicker and stronger, whilst they are languid at the wrists. For, by these marks,

not only is phrenitis, but death itself, indicated. We may expect a favourable termination, however, if the deglutition is easy, if the tongue preserves its natural appearance, if the patient is distressed with no internal pain †; if the drying of the pustules proceeds in the same manner in which the eruption went on. But there being no exsiccation, or but a lingering one, as well as repeated successions of crusts ‡, shew that the disease is not without danger.

* Lobb, l. c. p. 51. Rosen, l. c. † *Id. ib.* ‡ *Id. ib.*

223. But a few more general observations remain to be made, which are necessary to complete the doctrine of the prognostics. On the whole, petechiæ and bloody urine, at whatever stage they come on, likewise the total suppression of the eruption, and the secondary fever which follows the ratio of the number of the pustules, in particular pave the way to a fatal termination*. Pregnant women, on being attacked with small-pox, are not only very apt to miscarry, but also, both on account of the *puerperal fever* which frequently supervenes, and on account of the coming on of an hemorrhage being apprehended, generally run very imminent risk. Hysterical affections, spasms, cold and trembling, or rigor, are symptoms of a very inauspicious kind †. The voiding of urine, or stools, unconsciously; profuse, or cold, clammy sweats, or colliquative ones, or those which break out in drops, are considered as the immediate

forerunners of death. Tubercles, or red tumours, frequently betray themselves towards the end of the disease, and affect the adipose membrane. If they undergo suppuration, and are quickly opened, they generally answer the purpose of a critical evacuation ; but when they do not suppurate, or open at the proper time, they denote one of two things, namely, either defect of the *vis vitæ*, or the striking in of the purulent matter †. These tubercles more frequently happen in patients who have laboured under hæmaturia, and have escaped by employing vitriolic acid and blisters, as Meade observes ‖. But such patients are also liable to glandular swellings, which do not suppurate, and gangrenous ulcers of the tonsils. It appears, therefore, that the variolous virus cannot be carried off with more safety, or more effectually, than by means of suppuration §. Sagar saw several patients, who, besides the usual suppurating small-pox, were affected with the *crystalline* and *verrucoſe* species at the same time. During the period of suppuration they lay forgetful, and regardless of themselves, until they were carried off, as it were unexpectedly, as I have already noticed from the same author (199.). He was surprised, however, that they were neither affected with fever, nor swelling of the face, nor with any ophthalmia ¶.

* Syden. l. c. p. 413. † Lobb, l. c. p. 53. ‡ *Id. ib.* p. 54. § *Id. ib.* Sag. l. c. p. 20. § L. c. c. 3. ¶ L. c. p. 21.

THE CURE.

224. HAVING delivered as accurate a history of small-pox as I could, and collected the observations of distinguished medical writers from all hands, preferring prolixity to too succinct a discussion, I shall now proceed to the cure. It must be observed, in the first place, that nature in small-pox, as in other exanthematic diseases, attempts the critical expulsion of the heterogeneous principle (4.), with which the system is stimulated, to the surface, and the freeing herself from every noxious fluid, by inducing small phlegmons on the surface, and changing them into laudable pus. But though she sometimes attempts that by a gentle, and almost insensible motion, she generally attains it by exciting a degree of fever, which is called the *febris apparatus*, or *contagii* (167.). It again requires a certain degree and time to become capable of preparing, extricating, and expelling the variolous virus, as happens in fermentations, that the fermenting liquor may be able to separate and expel the heterogeneous, impure, and useless substances. But it seems peculiar to the variolous miasma, not only to excite a certain appearance of fermentation, but also, like a ferment, to assimilate the fluids more or less to its own nature. It consequently follows, that, if the motion of nature be neither excessive nor defective, it ought ne-

ver to be disturbed by art, but allowed to go on until she completes her work. But if it is either too torpid and inert, or too violent, it is then proper to rouse it gently and cautiously, or to restrain it *. Particular care, however, should be taken to prevent as much as possible the assimilation of the fluids to the variolous ferment, which, it is generally allowed, consists almost intirely in the employing of a proper regimen, particularly with regard to diet.

* These observations correspond with the excellent rules laid down by Sydenham, in treating of the regular small-pox of the years 1667, 1668, and 1669, where he says the indications are :
 1. To preserve an uniform circulation in the blood, which may neither occasion a premature separation by its too great violence, nor retard it by its torpor, or cause an improper one ;
 2. To support the little abscesses or pustules with the greatest care, that after running through the usual course, they may at length carry off the matter contained in them, and disappear themselves."

225. For it is said that nothing contributes more to aggravate the fever, and assimilate the blood fluids to the variolous poison, than excessive heat of the bed and bed-chamber *; as by means of it the heat of the blood, which, in the contagious stage, is very nearly allied to the heat and motion of fermentation, is excited so much, that almost all the fluids, losing their pristine bland disposition, acquire a new and bad quality, analogous to the variolous ferment. On which

account Sydenham advises patients not to betake themselves to bed till the intire eruption has appeared ; that is, not before the sixth day from the beginning of the disease, or the third or fourth from the commencement of the eruption. Moreover, after that time he suspects the heat of the bed to be of so pernicious a tendency, that he does not hesitate to derive from it the watching, phrenitis, and other dangerous symptoms †. He therefore proposes keeping the patients out of bed in the day-time, for six days after, as far as the strength will permit, especially when the number of the pustules is so great as to require being restrained. But they must not be any longer kept out of bed when an acrid pain in the pustules is felt, or a propensity to fainting seems to require rest in the horizontal posture. He grants, however, that in the benign distinct small-pox ‡, and after having let blood, there is less necessity for remaining out of bed ; as in them the blood is not in such a state of fervour, nor is there so much reason to apprehend the assimilation already mentioned. He also excepts the case in which eclampsia, or epilepsy, has come on before the eruption ; for he then orders the patient to be carried to bed, and prescribes cordials and paretics conjoined, especially laudanum to the extent of a few drops, and cantharides applied to the nape of the neck, in order to draw out the eruption ||. Nor does he think that

these patients ought to be kept out of bed
 “who labour under excessive sickness, violent
 fever, giddiness, pain of the joints like that of
 rheumatism, and other such symptoms which
 contra-indicate it.” In such patients, especially
 when they were of the sanguineous temperament,
 and in the prime of life, as they cannot remain
 out of bed, he used to endeavour to alleviate the
 complaint, first by bleeding from the arm, and
 next by an emetic a few hours after; by which
 he saw them so much relieved, that they became
 capable of remaining out of bed, as if in perfect
 health §.

* *Dif. Ep.* p. 406. † *Ib.* p. 403. & 406. ‡ *Ib.* p. 407.
 || *Ib.* p. 415. & 420. § *Ib.* p. 422.

226. Not only constant lying in bed must be
 avoided, but also too great heat of the bed, and
 continuing long in the same air, without its being
 renewed, particularly in the summer-time. For
 Sydenham * considers the admission of fresh air
 as highly necessary. Nor does Meade † disagree
 with him, as he extols the efficacy of fresh coldish
 air, and ascribes many bad effects to that which
 is warm, close, and infected with noxious hal-
 itus, rendering the respiration anxious and diffi-
 cult, increasing the fever and number of pustules,
 and at length giving rise to inflammations and
 gangrenes. All these facts are confirmed by
 De Haën ‡, who is a most faithful follower of

Sydenham, and speaks in the highest terms of the frequent renewal of the air, the careful changing of the bed, and ventilating the cloaths and bed-chamber. For he affirms, that he knows nothing more efficacious,—and almost all modern writers agree with him, especially such as have experienced the utility of inoculation,—both for preventing and checking the malignity of the complaint, than remaining long out of bed during the day-time, cleanliness in point of bed-cloaths and bed, amusing the patient's mind with pleasant conversation, concerts of music, and in particular moderate walking in the open air ||. But they tell us that it is impossible for a person who has not experienced them to conceive the very salutary effects to be derived from walking §. For they assert, that, when the patients are languid, anxious, and burning with the heat and violence of the fever, immediately on being brought into the open air, and, while supported by the attendants, made to attempt walking gently, they become refreshed and chearful in a very short time, resume their strength, breathe more freely, regain their spirits, and gradually walk about without any assistance; and that the fever subsides very much, the pulse being quickly restored to greater moderation **.

* L. c. p. 407. † *De Var.* c. 3. ‡ *Rat. Cont.* T. 1. c. v. § vii. n. 4. || *Id. ib.* n. 9. § Störck, *Med. Pract.* T. 1. p. 271. ** *Id. ib.*

227. Nor ought we to be surpris'd that so many advantages are derived from a circulation of pure air, as every student in physiology must know, that, by the admission of pure air, not only the warm air of the room—impregnated with the effluvia of the patient, by which it is rendered unfit for carrying on the respiration—is completely dispersed, the heat gradually diminished, the lungs more easily expanded for drawing in the breath, and the heat and fermentation, as it were, of the blood, allayed ; but also, that both the cutaneous and pulmonary insensible perspiration are promoted, and in some measure called forth and attracted by the law of affinity and chemical solution, which the pure air affords ; and thus, perhaps, a considerable part of the variolous miasma is carried out and dispersed by the insensible perspiration. All which things are esteemed of such consequence by the first writers, that they confidently deride the groundless fear of such as think, that by the admission of the pure air the eruption of the pustules is checked, or their striking in occasioned ; being convinced, by long and uniform experience, that the eruption in such air appears much more easily, certainly, safely, and regularly *. If it is objected, however, that by such a regimen the eruption of the pustules has sometimes been observed to be retarded, which cannot be denied, Sydenham affirms, that less danger is threatened by it than by the vitiation

of the fluids, which follows the opposite regimen, and occasions, moreover, the appearance of a more violent fever on the eleventh day, in consequence of vast numbers of the pustules undergoing suppuration, and which often cuts off the patient †.

* Störck, l. c. p. 272. 273. † L. c. p. 413.

228. All these observations, concerning the heat of the bed and chamber, renewal of the air, walking, and other things to amuse the mind, recommended by the best writers on the subject, must be always kept in view, as being both consistent with reason, and confirmed by long experience. It must not be supposed, however, that this regimen is to be employed indiscriminately, without restriction, and at any time of the year; or that because it is uniformly attended with success in the artificial small-pox, that it will always turn out equally to our expectation in the natural ones. For there seems to be no small distinction between the two, in consequence of which the same regimen and method of cure is not always found applicable to both. For a very small portion of the variolous pus, and indeed that which is of a more benign and better kind, is employed in imparting the small-pox artificially, which is of great consequence. The contagious matter, likewise, is inserted as it were gradually, in a very safe part of the body, very distantly situate from the vital and interior parts.

As healthy a body as possible, a proper time of life, and very mild season of the year, namely, the spring or autumn, are chosen. On which account, not only the contagious fever is generally very mild, but the strength, appetite, and other functions, are but slightly injured in general, few pustules, and these of the distinct and benign kind, break out, and, lastly, the other stages of the disease are very mild. No wonder, therefore, that the inoculated patients walk about in the open air, and remain out of bed and awake without injury. On the other hand, in the natural small-pox, a greater quantity of the variolous contagion generally enters the body, and vitiates the fluids. It is received principally by the mouth and nostrils; and, moreover, the head, brain, lungs, stomach, and the most important viscera, are chiefly affected by it. Hence more severe affections of all the functions take place. Besides, people of all constitutions, habits, and ages, are alike subject to the complaint. They are affected, also, at any season, even at an improper one, as during the heat of summer, or the cold of winter, or during the prevalence of other pernicious diseases and malignant epidemics. On which account, both the fever which follows is often more violent, together with the other symptoms, and there is greater loss of strength, in so much that the patient cannot stand out of bed, and far less walk, without

fainting, especially if the complaint is to turn out malignant and confluent; and their being combined with petechiæ or the miliary eruption, and the like, cause the natural small-pox, not only to differ very much from the artificial, but to require even a different regimen and method of cure.

229. On which account both the state of the patient's health, and age, and the time of year, and the quantity and degree of the contagion, ought to be carefully considered, and the plan of treatment should be regulated accordingly. For instance, some things may be done in summer which are attended with danger in winter, and that which may be borne easily by a stout young man would overpower a weak person or child, or a delicate female, as Meade very properly remarks. But to put the matter in a clearer point of view, on the whole, the cold of winter ought to be corrected by the proper remedies, that the constriction of the skin may not check the appearance of the variolous matter, or repel it after it has already appeared, and also that the febrile motion which nature employs may not be so much checked as to become unavailing. It will be proper, therefore, sometimes to attend to the advice of Morton and Meade, who propose confining the patients to bed for a few days before the eruption, that the whole skin may be relaxed with gentle warmth. It may be necessary to observe this when the skin has become too much constricted, either

by age, or in consequence of the patient's habit of body, or manner of life, or preceding diseases. But the excessive heat of summer may be corrected by using thin coverings, admitting cool air, or remaining some time out of bed. And, by the same means, excessive ardor of the fever may be recalled within bounds. It is equally rash in the winter-time, or in cold weather, to cool the patients, or overcome the vital power, already too languid, as it is preposterous to scorch them in summer, and, as it were, add fuel to the fire.

* The observations which Lorry has made, in his Commentary on the Diseases which prevailed in Paris in the year 1777, are so applicable to the subject, that I cannot help transferring them to this place. "I am convinced (he observes), that in a matter of such importance, as the preservation of the lives of mankind, every person who practises our profession with honour seriously pursues the truth. But who can refrain from enthusiasm? I fear that the treatment of small-pox has not remained free of it. The ancients employed cordials and alexipharmacs. I shall not take pains to refute that system, which is now justly laid aside. Ballonius, Ferrius, and Sanctus Marthus himself, though no physician, in his poem on *Pædotrophia*, have declaimed against this abuse, and discussed the propriety of bleeding in the midst of the eruption. Last century Sydenham delivered the surest precepts concerning the cure of the small-pox. Freind and Meade, who revived the most ancient method of cure recommended by Rhases, and likewise Helvetius, Sidobre, and Heque, have shewn of what consequence it is in this disease, to admit the cold air, to keep the bed and cloaths clean, and to employ cooling drinks, as in all its stages it is truly inflammatory. But have not physicians for some time back abused these rules,

by exposing patients to the excessive cold of a frosty atmosphere? and have they not falsely preferred carefully keeping the skin cool, to the possibility of the eruption striking in? Does not the swelling of the face and hands require a certain degree of warmth, and a certain disposition of these parts to a gentle perspiration? Is not that perspiration, which certainly cannot take place in a frosty atmosphere, when checked, transferred slowly and successively, sometimes to the breast, sometimes to the joints, and sometimes to the eyes? In convalescents, at the time when the whole mass of blood is generally purified, ought we not to observe a proper regimen, for a long time, both with regard to diet and changing the air? *Hist. de la Soc. Roy. de Med. T. 2. p. 11.*

230. It will be safer, therefore, to steer a middle course, that is, neither to suffocate the patient with too much heat, nor to starve him with cold, so as almost to obstruct the cutaneous vessels, or intirely derange the necessary motions of nature. I have frequently seen a slow lingering eruption, and depressed pustules, successfully called forth and raised by gentle heat of the bed and chamber. Nor has the imprudent admission of air, especially during the suppuration or exsiccation of the pustules, even during the summer, been unattended with danger. I have sometimes been surpris'd at metastases very quickly proving fatal, arising from this cause only, even in the distinct and benign kind. Melancholy instances of this kind no where occur more frequently than among the children of poor people, who generally dwell in small apartments to be sure, but badly defended from external injuries, and per-

vious almost on all hands to the air, wind, and cold, or who have scarcely any cloaths with which to cover themselves in bed, or live in open halls, or lie under the open air, or are carried about from place to place. The ravages which small-pox make in these cases are almost incalculable. The cases, therefore, in which the precepts already laid down are to be employed, and when the heat of the bed ought to be laid aside, when the bed ought to be ventilated, and when it is allowable for the patient to appear in the open air, it is the business of a very skilful physician to determine. In general, the temperature of the bed and chamber ought not to be too great, and should rather incline to cold, especially when it is summer, or the fever is very violent, and the pustules are numerous and raging, as it were. Next, if excessive dryness be added to the heat, it will be of great service to sprinkle the floor with cold water, and to place live plants in the room, which are said to absorb the effluvia, and purify the air. But in ventilating the room, as it is proper occasionally to clear it of the impure putrid effluvia, some moderation must be observed to prevent the admission of sudden cold, or the wind, or humidity, by which the eruption is retarded, or repressed. De Haën himself, though a very great advocate for renewing and cooling the air, confesses that it requires the greatest attention. For he advises removing

the patient into an adjoining close apartment, while his bed-chamber is ventilated, that the windows and doors may be opened with more safety, without his running any risk from exposure to the cold air. He adds, moreover, that the bed should be placed in such a manner that the air of the window or door may not strike directly upon it *.

* *Rat. Cont.* T. I. c. v. § vii. n. 4.

231. As the nature of the food to be employed constitutes no inconsiderable part of the regimen (224.), it will be proper to make some observations upon it, in order to point out that which is best calculated for the patient. Sucking infants require no other than their usual milk. On the whole, if there is great thirst and heat, that they may not load themselves with too great a quantity of milk, they may be allowed to drink toast and water, or a decoction of barley, rice, or grass, or even pure water, not only to quench the thirst, but to dilute and cool all the fluids. But the nurses ought to abstain from wine, too much animal food, from oily, sour, salted, and aromatic things, and others which prove too heating, and confine themselves to bland meats, chiefly of the vegetable kind, weak soups, fresh eggs, tender fresh-water fishes; and take much diluent cooling drink; while, above all things, their minds ought, as far as possible, to be kept tranquil and chearful.

232. Children, young people, and adults, if they have an appetite,—for they sometimes have such a loathing of food as not to eat any thing for several days,—should be confined to very spare, fluid, and cooling diet, such as the expressed juice of barley or rice ; water-gruel of fine bread ; sweet, or subacid fruits, as prunes, cherries, strawberries, pears, apples, especially with sugar, and the like, which have the effect also of gently purging the belly, and at the beginning of the complaint prove very serviceable. But if they have a dislike to these also, they may be occasionally allowed to take a little weak frog, chicken, or veal soup, without any injury. I have known some patients reject all kinds of food, without any injury, until the complaint had taken its turn, excepting crusts of bread dipt in wine ; which may be of service, especially when there is very great nausea, perpetual vomiting, and great languor. But for drink may be given, water with lemon, citron, or orange juice, sweetened with a little sugar ; decoctions of apples ; weak emulsions of sweet almonds, or lemon-seeds ; the purest whey, &c. in the summer-time coldish, but in winter tepid, or at least with the cold taken off.

233. Enough, then, of the regimen respecting the diet. The remaining part of the cure, which is derived from surgery and pharmacy, I shall just now discuss in order, enumerating and weighing with impartiality the different remedies

which the particular stages and symptoms of each kind of small-pox require. In the first stage, therefore, if the disease is perfectly mild, as it is in the most benign and distinct kind (169. et seq.), when either no fever, or a very slight one, accompanies the disease, or it is of such a kind, that the moderate pulse, the mild heat, easy gentle respiration, the head not being affected, there being no mental disorder, and the other symptoms being milder than usual, not only point out the full separation of the variolous matter, but also that the suppuration and exsiccation of the pustules may be expected at the proper time;—the whole of the cure should be left to nature, and it is sufficient to assist her operations merely with a proper regimen and bland diluents. On the whole, if the belly be too bound, it may be kept open with some emollient injection, that the intestines may be quickly freed from the fordes, the retention of which would occasion uneasiness.

234. But if the patient is really plethoric, if the fever is violent, if the pulse is great, full and hard, or, on account of the excessive fulness of the vessels, obscure and suppressed, if there is great heat, dry skin, anxious respiration, flushed face, severe headach, or unusual stupor, or coma, or delirium, and similar affections, as happens in inflammatory diseases (210.), and, moreover, the preceding state of the air and former diseases, or such as accompany the complaint, evince an in-

inflammatory diathesis, bleeding then becomes necessary. In young people, in adults, and in people in the prime of life, it not unfrequently happens, that, on account of the violence of the fever and the continuance of the symptoms, bleeding twice or thrice becomes necessary*. But that may be done also at any other period of the disease, if any severe symptom indicates bleeding, and the strength can bear it†. Nor ought it to occasion any apprehension, providing the patient's strength be kept in view, that the eruption about to take place may not be checked by means of the bleeding: for, on removing the excessive fulness of the vessels, or relaxing the crasis of the blood, by which the eruption is sometimes retarded, in general the separation of the variolous matter, and its expulsion to the surface, are facilitated; nay, many bad consequences, which would supervene in the course of the disease, as phrenitis, convulsions, and peripneumony, are thus prevented. It seldom happens that it is necessary to bleed very young children. If ever, however, plethora, convulsions, or other symptoms, especially inflammatory ones, happening in them also require the letting of blood, and the blood cannot be drawn either from the jugular veins, or those of the arm or hand; leeches applied to the temples, or behind the ears, in some measure supply its place. But we must not immediately proceed to

bleeding, from observing one or two symptoms indicating it, unless they remain constant and violent, or be of such a kind as to leave no room for doubting the propriety of it. For it may be sometimes omitted, or deferred, without the fear of any bad consequence, nay, the fever, heat, anxiety, and delirium, have frequently been observed to abate, merely by employing diluent and attenuant antiphlogistic remedies, pure air, and diminishing the number of the cloaths ‡.

* I cannot help making a remark here on the celebrated Pitcairn, who, among his medical works, when treating of small-pox (See his *Elem. Med. Phys. Math.*), does not hesitate to order “bleeding so long as the fever continues; and to continue it after the eruption, until the fever ceases.” For every body must perceive how much such a general rule, without exception, might mislead young practitioners. Bleeding, therefore, ought not to be employed, or repeated, unless the real symptoms indicating it are present; nor ought it to be continued until the fever ceases, for in that case the patient would lose his life before the fever departed. Nor is the fever to be dreaded so much, if it does not exceed bounds; because, by means of it, as I have already shewn, nature forces the variolous matter to the surface, and frees herself from it. Nor must Sidobre’s plan be followed; for he also, in the first stage, recommends bleeding without limitation, and prescribes repeating it twice, thrice, four, five times, nay, six or eight times, according to the urgency of the symptoms, and the patient’s strength and age (*De Var.* § xxviii.). For it very rarely happens, that such profuse bleeding can be borne, or it is scarce ever necessary. Tissot has very properly observed, “In a mild disease it is useless, in a very mild or malignant one it is hurtful, in a severe complaint it must be repeated at the beginning, until it appears from the pulse, the relaxation of the skin, and remission of the symptoms, that the

Inflammation is diminished. *Ep. V. Arg.* p. 38. † Meade, l. c. c. 3. ‡ Störck, l. c. p. 271.

235. After bleeding, when it is necessary, if the fever and inflammatory symptoms nevertheless continue, we must have recourse to antiphlogistic remedies, particularly diluent, attenuant, and cooling drink, as barley-water, to which nitre, oxymel, or tart vegetable juices have been added, until the fever and symptoms remit*: nor is it improper sometimes, in excessive heat of the fluids, and violent action of the heart, and irritability of the arteries, to add some vitriolic or nitric acid, so as to produce an agreeable degree of acidity. It has been observed sometimes, that the strength, which at the beginning appeared greater during the employment of these remedies, or even independently of them, is suddenly reduced, and becomes scarce capable of supporting the remainder of the disease. In that case, omitting refrigerants and correctives, we must have recourse to stimulants and cordials, and persist in the use of them, until the strength being sufficiently roused shews that their use may be laid aside. In the mean time, proper attention must be paid to the precepts that have been delivered concerning the patient's remaining out of bed, and the renewal of the air †; and, at any other stage of the disease, if such a degree of debility comes on, the physician ought to act just in the same manner.

* Störck, l. c. p. 270. † *Id. ib.* p. 279. 280.

236. After employing bleeding, or not, as there may be occasion, and prescribing the proper internal remedies, according to the indications, it remains to be determined, whether the patient ought to be purged. If, from the patient's preceding manner of living, or from symptoms of bile or phlegm collected in the *primæ viæ*, which I have elsewhere frequently mentioned, but particularly when treating of the *acute gastric fever* (Vol. I. par. 373.), it may be conjectured that the stomach or intestines abound with a crude, corrupted, bilious, or mucous colluvies, there can be no doubt that it ought to be removed either by vomiting or purging, as may be found most convenient * (Vol. I. par. 391. 392.). Sometimes the epidemic itself, to which it is always proper to pay attention, or the quantity of the variolous poison which has entered the stomach, or its being retained there occasioning uneasiness, which alone is sufficient to excite nausea, and vomiting without any thing being thrown up,—require that the *primæ viæ* should be shaken with somewhat rougher vomiting, as most practitioners mention to have been done occasionally with the greatest advantage, particularly in the epidemic already mentioned from Haller (198.). For that physician assisted the vomiting so much by an emetic, as to cause a copious discharge from the stomach at least eight times; having observed, that as often as the vomiting, which was almost an uniform

symptom, was suppressed, that a more unfavourable event was the consequence †. But if emetics seem to be contra-indicated by other symptoms, or the propriety of employing them may be called in question, it is then the safest plan to gently remove the gastric colluvies, by means of some mild cathartic, as manna, or its syrup, or that of succory, or of walnut-flowers, or by means of some neutral salt, or clysters which are almost harmless. I say *gently*; for all immoderate exciting of the bowels ought to be avoided here. But whether vomiting or purging are employed, it is absolutely proper to make a trial of one or other before the appearance of the small-pox ‡. But it is proper to abstain from both, if the vomiting, nausea, cardialgia, or colic pain, are known to arise, not from a gastric colluvies, nor from worms, the symptoms of which I have already pointed out (208.), nor from the quantity of the contagious matter entering and vellicating the stomach, but merely from the febrile commotion, or the derangement of the nerves (208.), as generally happens in tender, delicate constitutions. For then these symptoms, as soon as the whole variolous poison has been forced to the surface, generally abate of their own accord. It is proper, likewise to be on one's guard against emetics and cathartics, if any symptoms, even of slight inflammation of the stomach, or intestines, are pre-

sent. For it is found, that every thing apt to occasion irritation ought to be avoided, and that only the gentlest cooling, demulcent, diluent, and emollient remedies should be employed, both internally and externally. But as it not unfrequently happens, especially in children, that worms are combined with fordes in the *primæ viæ*, I generally add to the cathartics some anthelmintic, as worm-seed, *corallina maritima*, or some similar remedy, the more readily to eject the worms.

* *Id. ib.* p. 270. † *Opus. Path. Cit.* p. 114. 115. Meade, l. c. c. 3. ‡ Tissot observes, that if bad symptoms come on at the beginning, from depraved digestion, the belly should be purged with cream of tartar, tamarinds, and so forth, until all the symptoms arising from that cause disappear (*Ep. Var. Arg.* p. 50.). In the case of peevish patients, who refuse cathartics, a small dose of tartar emetic may be added to the drink, not to excite vomiting, but to move the belly, which is attended with advantage (*Id.* l. c. p. 51.). Even when the disease is farther advanced, if there be symptoms of indigestion, purging may be attempted (*Id. ib.*). But the same author holds the following to be the symptoms indicating its presence: 1. Greater headach, or drowsiness, than might be expected from the force of the fever; 2. bad breath, loathing of food, and nausea remaining even after the eruption; 3. in the benign complaint, the fever remaining, and being accompanied with anxiety, even after the eruption; 4. fetid stools, and frequently fetid diarrhoea, without depression of the pustules; 5. delirium; 6. crude, turbid urine, and swelled belly.

237. But when the strength in this stage is much reduced, and the nervous system particularly affected, as in the slow nervous or malign-

nant fever, with the symptoms elsewhere enumerated (211.), or there is a very rapid tendency in the blood to colliquation and putrefaction (212.), as generally happens in some species of *malignant distinct small-pox*, particularly such as are combined with petechiæ, the miliary eruption, and black or livid spots (278.), or as occurs in these *malignant confluent small-pox* (292.—299.) which quickly terminate in almost universal gangrene;—another plan of cure must be adopted. In the first case, the regimen ought to be temperate, but not such as to check the fever too much, and weaken the strength more and more, or repel the petechial or miliary eruption. The patient, therefore, ought to indulge a little more in lying, and cover himself with a greater number of bed-cloaths, and not expose himself rashly to the open air, and he ought to change his bed, and ventilate the chamber with caution. The internal remedies ought to be diluent, but at the same time moderately exciting, and so as to gently rouse the motion of the heart and arteries. For the drink, therefore, may be given, infusions of elder and tei-flowers, those of the tops of the *carduus benedictus*, or of the leaves of *scordium*, or decoctions of scorzonera root, and of grafs, or barley, with the addition of a little wine, or whey and wine prepared together. But if the torpor of the system requires being roused still more, it will not be improper occasionally to add some cordial

and alexipharmac remedy *. With the same view somewhat more generous living should be enjoined, as animal soups, and the yolks of eggs, prepared with citron-juice. In the other case, if, at the beginning of the first stage, symptoms of putrid dissolution of the fluids are present, or the prevailing epidemic shews a tendency to it, we must speedily oppose it with antiseptics, properly so called, as the strong acids, camphor, Peruvian bark, and others so often mentioned, at the same time attending to the ventilation of the bed and chamber, and making the patient remain, if possible, sometime out of bed in the cool open air. But bleeding is inadmissible in either case, as it immediately exhausts the strength, and accelerates the putrefaction and fatal termination.

* I shall here quote a passage of Morton's very much in point, which is to be found in *Exercit. Tert. de Febr. Inflamm.* c. vii. p. 65. His words are: "For as, in consequence of covering the patients with a number of bed-cloaths, and the improper administration of heating remedies, the spirits being forced into too great a flow must necessarily be dissipated; so being checked by too great cold of the surrounding air, they cannot sufficiently expand themselves, and assail the enemy with their native vigor. On which account I never could be led to adopt the opinion of the celebrated Sydenham, who acrimoniously contends for the employment of the cold regimen in every species of small-pox, making his treatment to consist of spirits of vitriol, the white decoction, syrup of meconium, and similar refrigerants, together with cold air admitted into the apartment; but so averse is he to the employment of alexipharmacs, that he can scarcely be brought to allow of ever so small a quantity of plague-water, theriac, com-

pound powder of crabs claws, or of posset altered with the flowers of marigold and hartshorn shavings, however pestilential and deleterious the disease may be." And after making a few observations, which for brevity I shall pass over here, he proceeds as follows : " When the disease is found to be very fatal, the spirits are completely overcome by the poison, in consequence of which, defect rather than excess of the heat of body is manifested by the weak and irregular pulsation of the arteries, and pale colour of the urine. Who in such a case would recommend the employment of the cold regimen ? Besides, the author himself frequently acknowledges, that the confluent small-pox sometimes equal, or even surpass, the plague in violence. But who ever attempted the cure of the plague by using such a regimen ? With respect to the histories of the successful cures which he mentions to have performed in this manner, I have no doubt, that after the spirits had been long and improperly dissipated, by the application of too much heat, particularly externally, the patient, on being suddenly raised out of bed, or, at least, freed from the weight of the bed-cloaths, derived advantage from being in some measure cooled, in consequence of which, the spirits having gradually recovered a mild temperature, were capable of opposing the disease with more success ; or, in a mild state of the disease, in which they have completely overcome the poison, were capable of bearing the bad effects of this regimen, without any remarkable injury. But I positively deny that the cold regimen ought to be uniformly employed at the beginning of the disease, or when, from the absence of pyrexia, and the weak pulse, it appears that the spirits have been overpowered by the poison. As I have frequently seen very confluent and fatal small-pox, in which not the smallest drop or grain of any alexipharmac, or any warm regimen, had been employed during the contagious or eruptive stage, and strongly suspected that they turned out fatal, on no other account than because, during the *apparatus*, that is, before the spirits were affected with necrosis, their strength had not been duly roused by such remedies, which happens much more when they are depressed,

in consequence of being checked by the cold regimen. In which opinion I persist the rather, because—a fact which I suppose is well known to other practitioners—I remember, perhaps an hundred times, of patients, after using too cold regimen in the following stages of the complaint, becoming affected with watching, delirium, severe diarrhœa, frequent fainting, colliquative sweats, and other very fatal symptoms, and covered with petechiæ, and an eruption uniformly depressed and dry, marked as if with a black coal, who were sometimes suddenly, sometimes gradually, snatched from the very jaws of death, by the constant employment of alexipharmacs conjoined with opiates and blisters. Which observation is confirmed by several histories selected from many others, which I shall subjoin at the end of this treatise (these are 19. 21. 22. 25. 27. 29. 31. 47. 48. 49. 50.); but in these histories I do not wish the most malignant small-pox to be understood, the poison of which has acquired the highest degree of virulence. For it sometimes happens, that at the beginning it reduces the strength in such a manner, that, dissolving the consistence of the fluids, death, which is announced by an excessive hemorrhage and black spots occurring, threatens the patient, and cannot be averted (as he himself confesses), either by alexipharmacs or any other means. I shall pass over the unfortunate, not to say fatal, issue of this cold regimen, which not only his followers, but also he himself, to his disgrace, sometimes experienced; on which account,—as I have been told,—during the latter years of his life, he in some measure relaxed of his rigour in this respect. I shall therefore, for the sake of truth, however reluctantly, take the liberty of differing in opinion with the great Sydenham, concerning the regimen to be employed in this disease. It should be regulated with such moderation, that the heat ought to approach as near as possible to the temperature of the spirits, and be preserved uniform. The patient, therefore, immediately on being attacked with the disease, should betake himself to bed, and remain there, covered with the usual cloaths, and not loaded with too great a quantity. He ought to be kept as free

is possible from care, fear, and other passions, and should not speak, but enjoy sleep, or at least remain at rest. The air of the chamber, in the winter-time, ought to be corrected by keeping up a blazing fire, but, in the heat of summer, he ought not to be cooped up in bed as in a prison. In other respects, every thing should be ordered so equably, that the spirits may not be forced into excessive motion, or dissipated, or be rendered deficient by being checked too much." So far does Morton proceed, and, indeed, is supported by reason and experience. His opinion was adopted, not only by Meade and Huxham, his countrymen, who were divested of all partiality, but also before them it had been espoused by Harvey, the cotemporary of Sydenham, and an industrious improver of medical science, from whom I shall hereafter borrow a particular history to point out the bad effects resulting from Sydenham's treatment.

238. But as there are several other symptoms peculiar, as it were, to this stage, I shall proceed to shew the treatment which is calculated to the relief of them. The constant and acute headach, if it is very urgent, and does not yield to the other remedies employed, is very much relieved by tepid or moderately-warm bathing of the feet, repeated in the morning and evening, for at least half an hour each time; but, during the remaining intervals, the warm dough of fermented bread, or the pulp of rich figs, may be applied to the soles of the feet. Some advise continuing these only until the beginning of the eruption *. But De Haën, for the sake of producing revulsion, even when the headach was not urgent, ordered the upper and lower extremities to be daily immersed in warm water for at least half an hour, not only

in the first stage, but also during the intire remainder of the disease, promising to himself great advantages, besides what the patients derive from remaining out of bed. For, in consequence of the water being absorbed by the lymphatic veins and passages, the whole blood is remarkably dissolved and corrected, the violence of the disease is derived from the head and face, and is called out from the internal to the external parts of the system †, as the more copious eruption generally taking place on the parts which have been relaxed and fomented by the warm bath, seems to evince ‡.

* Störck, l. c. p. 270. † *Rat. Cont.* T. i. c. v. § vii. n. 5.
 ‡ Concerning the utility of the warm bath, employed both partially and universally, the ablest physicians are not yet altogether agreed. I find Ludwig, particularly (*De Top. Med. usu in Var. Vid. Aäversf. Med. Pract.* vol. i. P. 3. p. 473.), striving to shew that the bath, bathing the feet, and fomentations, both in the contagious stage, and immediately previously to the eruption, are either superfluous, or incapable of promoting the eruption; and that he finds from experience, that those parts are covered with fewer pustules which have been fomented with warm water, than the others; and, on the other hand, that the eruption is more frequently and effectually accelerated by the dry, cold air. The employment of the bath and fomentations is much more decidedly condemned by a celebrated physician of Naples (*De Sedib. Var.*), who confidently asserts that the eruption is checked by moisture, and promoted by dryness. But those who reject the bath and fomentations are opposed by a much greater number of advocates in favour of them. In particular, I find, in the account of the diseases which prevailed at Edinburgh in the year 1733 (*Med.*

Essays, vol. 3.), that in a good many patients, who employed warm bathing of their feet once or twice a-day, until a complete eruption took place, the head was not only wonderfully relieved, but even a more copious eruption appeared upon the legs and feet. And this ought to have more weight, as being supported by experience, and not depending upon theory. De Haën not only mentions Nicolaus Florentinus, Aftatius, Foresti, Sydenham, Boerhaave, and other most respectable authors, who, by means of such bathing, promoted the eruption, but affirms, from his own experience, that in general a more copious eruption takes place on the arms and legs, after bathing them, although he does not deny, at the same time, that this sometimes did not happen. But no impartial person can ever conclude, from the bath sometimes being inefficacious, that it is to be thrown aside as superfluous or inert, notwithstanding of the many instances of its proving so salutary. De Haën's opinion has lately been adopted by Azzoguidi (*Let. sopra il Vaj.* p. xxiv.), who, besides, remarks that sometimes the whole body should be immersed in the bath, and that it occasions a successful eruption, particularly in children. He adds, moreover, that this method was recommended many years ago by Bouvard, and, after being long neglected, that it was at length deservedly revived by Senac and others. But that mention of the employment of warm vapours and fomentations in the cure of small-pox was formerly made by Rhazes, Avicenna, and Dioscorides, Nerucci tells us, from the testimony of Freind, in a letter published by him in the year 1748, *concerning the use of the tepid bath* in the cure of this disease. He there shews, both by the trials which he himself made, and those of others, the vast advantage to be derived from immersing the whole body in the warm-bath every day or half an hour during the whole progress of the complaint; principally induced by the authority of Fischer, who, in the year 1721, in the district of Arga, a town in Upper Hungary, saw the baths there employed with the greatest advantage, and afterwards, in the years 1727 and 1728, employed them himself in the epidemic small-pox which prevailed in his own

country, with no less success. Immediately on observing infants, children, or young people to be attacked with the fever, he immersed them in the bath moderately warm, twice a-day, morning and evening, generally continuing the use of it for an hour and a half each time. Generally on the second day, seldom on the fourth, the small-pox broke out at once over the whole body; they quickly became full, and arrived at their proper size, and burst on the fifth, sixth, and very seldom after the seventh day; and he then bathed the patients, not with water, but whey, or milk diluted with two thirds of water, which, in the same manner as the former, he continued to use till the exsiccation was completed, which generally happened on the ninth or twelfth day. The same fact has been confirmed by the repeated experiments of our countryman Morand (*Della Cura del Vaj. Ancona 1753*, p. 32. § xiii.), in the very dangerous and malignant epidemic of the years 1737 and 1741, in which, after experiencing the inefficacy of every other method of cure, he employed the tepid bath from the beginning to the end of the disease, after the manner of Fischer, and derived the highest advantage from it. The utility of the tepid bath in expediting the eruption, and gently promoting the suppuration, was likewise experienced in France by Marteau, as appears from five histories published in 1768 in the *Journ. de Méd.* T. 28. p. 314. Nay, with Clifton, he did not hesitate to recommend it as mitigating the secondary fever. To these authorities, omitting many others, I shall only add that of Tissot, who not only approved of pediluvium, and fomenting the whole body with the vapours of warm water, but likewise employed the bath universally, both with the view of producing revulsion from the head, and calling the matter to the surface. For which reasons he seems to be convinced, whenever either the fluids are carried to the head with too great violence, or the eruption takes place slowly, on account of the languid vital power, or the dryness and thickness of the skin impedes the eruption; or the pustules, from cold being admitted, or sudden terror, or from the propelling power of the heart and arteries being diminished, at

once become depressed,—that tepid, or not very warm bathing of the feet, hands, nay, even of the whole body, will not only be proper, but even necessary.

239. Nor is this stage sometimes free of phrenitis (205.), which, if it be conjoined with symptoms of plethora, great heat, and increased action of the vital powers (234.), and seems to depend upon excessive quantity and quickened motion of the blood, besides bleeding, correctives, diluents, and antiphlogistic remedies, it requires also the tepid pediluvium just now recommended (238.). But if their violence is not allayed, and the head, on account of the excessive heat, continues to be violently affected, some propose bleeding the capillary vessels, which is said sometimes to have occasioned very great relief*. From similar causes, also, *coma vigil*, or *somnolentum*, likewise sometimes arises (205.). When this happens, almost the same treatment is applicable; but then, each time after bathing the feet, the cataplasms, which are applied to the soles of the feet to produce revulsion and excite the patient, ought to be rendered more active with the powder of mustard or vinegar of squills. Nay, if it is foreseen that the confluent small-pox are about to take place, not only the heat of the bed ought to be carefully avoided, but even a blister should be applied to the nape of the neck †.

* Morand, *Della Cura del Vaj.* p. 43. † Syd. *Diff. Ep.* p. 421.

240. I have already spoken (169.) of the epilepsy which sometimes precedes the eruption as a symptom of this stage. This symptom generally quickly disappears, being in a short time succeeded by an eruption of benign and distinct small-pox, so as scarcely to require any medicine, unless it is protracted too long, or arises from some other cause independently of the variolous contagion. Sydenham, however, in order the more readily to free the nervous system from the irritating variolous matter, advises immediately putting the patient to bed *, as the small-pox which generally appear, being for the most part distinct and benign, bear the heat of the bed without injury; and a blister may be applied to the nape of the neck, or back of the head, which may be accompanied with some cordial, or anodyne, not only to blunt the nervous sensibility, but also to assist the eruption. To a boy of three years of age he used to give five drops of laudanum, in a spoonful of plague-water, as it is called, or some kind of cordial water. Which dose may be both diminished and increased, not only according to the patient's age, temperament, and habit, but also according to the strength of the laudanum. For it sometimes becomes so thick by standing as to contain considerably more opium than when it was thinner. Besides these remedies, Meade advises the application of blisters to the soles of the feet, the more certainly to produce

revulsion from the brain †. I have sometimes observed warm and moist fomentations wrapt round the legs prove of the greatest service, as fulfilling both intentions. In place of the laudanum, Hoffman's mineral anodyne may be substituted, or Pegoldt's antepileptic spirit of vitriol; both of which are very safe, and remarkable for their anodyne power. But if dentition is suspected to be the cause of the epileptic fits, then spirit of hartshorn, or succinated spirit of hartshorn, given to the extent of a few drops in some cephalic water, is preferable to all other remedies.

* *Dissert. Epist.* p. 420. † *De Var.* c. 4.

241. As in the case of epilepsy (240.), therefore, and very great tendency in the nervous system to spasms, while, however, no plethora is present, and the vital powers are much reduced, it is allowable to have recourse to paretics and opiates;—so, also, when the patient is distressed with any acute pain, and becomes faint, as not unfrequently happens in the malignant confluent small-pox (187.), it must of course be allayed with opium, and the strength of the system, which is almost sinking, must be roused by its cordial power. The looseness, also, to which children in particular are liable in the first stage (170. 186.), sometimes requires attention. If it proceeds from a colluvies in the *primæ viæ*, and is truly stercoraceous, fetid, and easily borne, it

ought by no means to be checked, nay, it ought rather to be gently kept up, by occasionally giving a little wine, or some other gentle cordial, to strengthen the patient *. But if it proceeds from the variolous virus being improperly carried to the intestines, or weakens the patient, as frequently happens in the first stage of the malignant confluent small-pox (193.), or a great discharge of ferous colliquative fluid comes off, attended with loss of strength, it is quite proper to check it with opium †, and sometimes even by cantharides applied to the skin to draw the noxious fluid to the surface. Hence it appears, I think (240. 241.), that the use of opium cannot be altogether forbidden in the first stage of small-pox ‡, as some perhaps have supposed.

* Varnier, *Journ. de Méd.* T. v. p. 152. Août 1756. † *Id. ib.* and Tissot, *Ep. Var. Arg.* p. 52. and Morton, *Exerc.* 3. *De Feb. Inflam.* c. vii. p. 71. ‡ For although Meade (*De Var.* c. 3.), and Morton (*Exerc.* 3. c. vii. p. 71.), and others, have reprobated the use of opium and narcotics, before a full eruption taking place, for many reasons, but chiefly because it is supposed to check the separation of the variolous matter, and to increase the delirium caused by the violence of the fever, or to lull the spirits, and to diminish and check their strength; yet both of them, after the epileptic fits in this stage, in the case of very violent pains, and great tendency to spasms and convulsions, in some people who are endowed with too great sensibility and irritability, as also when an immoderate and debilitating looseness, which is inimical to the eruption, takes place, as I have already said (240. 241.), are not altogether averse to laudanum and paretics, and are obliged, though reluctantly, to adopt the doctrine of Sydenham, who ascribed to his lauda-

num the power not only of allaying the convulsions, and checking excessive evacuations, but also of promoting the eruption of pustules (*Diff. Ep.* p. 420.). In which respect I find two eminent physicians agreeing in sentiment, Störck (*Pract. Med.* P. I.), who is certainly a very great advocate for narcotics; and Tissot, who, although he reprobates them so much as neither to allow any soporific to be given during the fever of the first stage, or after it (*Ep. Var. Arg.* p. 17.); yet, on account of their cordial and diaphoretic power, when there is occasion for them in this stage, he does not reject them. Gatti also seems to subscribe to their opinion (*Nouv. Reflex.*), as he in some measure admits of sedatives and paregorics in the febrile stage, before the appearance of the eruption. But since, concerning the utility of these remedies, various arguments are employed on both sides, some extolling, and others reprobating them, in the most unqualified manner, we shall not want an opportunity hereafter of reviewing their arguments, and giving our own opinion on them. In this place, however, I shall only observe, that in this disease opium is seldom admissible, as it is allowed by the most approved authors to possess certain properties, on account of which it is supposed to be injurious in these diseases. For it is considered as being, 1. a very warm sudorific; 2. as being very irritating; 3. as a septic which induces gangrene; 4. as rarefying and suppressing all the excretions, except that of the sweat; 5. as checking the catarrh, in a particular manner; and, 6. by inducing sleep, which is often found to be hurtful in small-pox, as increasing the heat, fever, and affections of the head (*Vide Tissot, Ep. Var. Arg.* p. 8. to 17.). In which respects, although some things may appear exaggerated, still, on the whole, there is a great deal of truth.

242. In this first stage not unfrequently hemorrhages come on, which, however, are not always alarming; for when they arise from ple-

thorax and too great febrile motion, they are generally found to be salutary. But if the disease is more malignant, such hemorrhages, namely, those from the nose, intestines, and uterus, but particularly the hæmoptysis and hæmaturia (207.), generally prove fatal, and, if they proceed from excessive tenuity and dissolution of the blood, as they generally do, besides the cooling regimen, require coagulating, inspissating, and astringent remedies. Among these a principal rank is held by acids of all kinds, both vegetable and fossil, which ought to be drunk in great abundance *. Next come paregorics, mixed with astringents. Sydenham, in the case of an hæmoptysis and hæmaturia, does not hesitate, first to let blood pretty liberally †, which I should think allowable only in plethoric and strong patients, for in the hæmaturia which comes on later in the disease, others have found bleeding hurtful ‡: next he recommends a draught composed of two ounces of the flowers of wild poppy, fourteen drops of laudanum, three drachms of distilled vinegar, and half an ounce of syrup of meconium. But the whole of this dose must not be taken, excepting by an adult. He then proceeds to real astringents, as the terra lemnia, terra sigillata, bolus armena, the corallium rubrum, lastly, mastich, and gum-arabic, as agglutinatives. Hoffman set a high value upon whey, in which the gum of cherries, or gum tragacanth, was dissolved ||. In

the highest degree of danger, and when the blood is greatly dissolved, it may be proper to have recourse to the serum lactis alluminosum, as they call it, and the specific of Helvetius. Some also propose blisters of cantharides, particularly the British practitioners, who scarcely refrain from employing them even in diabetes.

* Tiffot, *Ep. Var. Arg.* p. 31. 32. Syden. *De Febr. Putr. Var. Confl. Superv.* p. 637. and *Schedul. Monit.* † *De Febr. Putr. &c. ib.* ‡ Salisbury, *Epist. ad Rich. Meade.* || *Cap. de Feb. Var.*

243. Immoderate and premature sweats affect adults more in the distinct (149.) than the confluent (186.) kind of small-pox. As they retard the eruption and rising of the pustules, they ought to be quickly checked by the patient's remaining out of bed, by cool, pure air, and using thin cloathing *. But I shall say nothing particular concerning the watching, restlessness, and other uneasy symptoms, which necessarily precede the eruption, unless they arrive at the highest degree, and require being mitigated by the employment of some anodyne, as they are generally borne without injury, and, after the eruption, of themselves cease intirely, or at least are much relieved.

* Home, *Princ. Med. de Morb. Febr.* sect. vii.

THE ERUPTION.

244. DURING the eruption the physician's whole care should be directed to the system's

freeing itself intirely of the variolous matter. If nature effects that of herself, so that the eruption goes on properly and regularly, as in the benign distinct (171. 172.), or confluent species, though not of the pernicious kind (186.), and, on its appearance, if the fever and its symptoms cease, or at least abate much, nothing is to be changed either in the regimen or in the diluent medicines, which appeared proper in the first stage, and which may be continued even to the end of the disease, unless some unusual occurrence requires particular treatment.

245. But nature, as happens in the malignant small-pox, both of the lingering (211.) and putrid (213.) kind, is often so completely overpowered with the poisonous miasma as to become almost incapable of effecting its expulsion: in which case it is manifest, that the system should be roused with bland cordials *. Moreover, from many other causes, which I have already pointed out (206.), the eruption is retarded, or carried on imperfectly. But the greater part of them weaken the vital powers, and diminish the motion from the centre to the surface. That the vital power is languid, appears in particular from the weak, small, soft, and irregular pulse. And it appears still more clearly, if the patient himself is languid, and at the same time pale, anxious and disturbed in his mind; or, also, if colourless pustules appear here and there, quickly disappear.

ing, or the skin becomes universally flaccid, and somewhat cold †. Among the proper cordials are enumerated particularly, warm infusions of scordium, of carduus benedictus, of ruta capraria, of teal and elder flowers, to which has been added some of the syrup of contrayerva, or cinchona, or citron-bark, or the mineral anodyne, or elixir of vitriol, or some more powerful acid, if it be required by the extreme corruption and colliquation of the blood. In which case, likewise, camphor and a little wine are of wonderful service.

* Home, *Princ. Med.* sect. vii. † Sörck, P.I. p. 281.

246. But if bleeding, or purging, improperly employed, have reduced the strength, or other excessive evacuations, even spontaneous ones, have occasioned this evil (245.), analeptics and restoratives ought to be added to the cordials, and the immoderate evacuations must be stopped by using paretics. And if the improper admission of cold, or very cold weather, or too long sitting up, or remaining out of bed, have retarded the appearance of the eruption;—then prudently increasing the heat of the bed, rest, and lying in bed, a greater number of bed-cloaths, and moderately warm drink, will be the proper remedies. In this manner have I more than once successfully promoted a lingering eruption of the pustules, or have so assisted them when depressed, and of the species named *umbilicatæ*, that they quickly rose, and

became quite full. When they appeared palish and too watery, the Peruvian bark gradually administered proved highly serviceable by its tonic, cordial, and antiseptic power. Advantage is derived from the vapours of warm water received on the skin, from fomentations and tepid bathing, which afford remarkable relief when sudden terror, rage, or some other passion of the mind, or some mistake either of the patient or bystanders, has checked the eruption, or repressed it after its actual appearance, especially if at the same time any composition of opium, or poppy, is given internally. In which case it is better for the patient to abstain from calefacient remedies, and to remain in the open air, carefully covering himself with cloaths, and using warm or tepid drink.

247. As soon as the strength appears to be raised, the pulse and heat revived, and the pustules not only to break out in sufficient numbers, but rise and fill, and grow red; we must no longer urge the employment of cordials and the heating regimen, but gradually return to diluents and correctives. It not unfrequently happens, however, that by the employment of cordials the strength is by no means roused, the pustules remain low and depressed, their colour inclines to brown, a black spot appears in the pits, the skin lying between them is found to be flaccid and livid, nay, is here and there disfigured with black spots; blackish fetid urine, tinged with

blood, is passed, and other profuse hemorrhages shew that the blood is dissolved, corrupted, and verges on necrosis ;—in which case the general opinion is, that the most powerful antiseptics, mixed with cordials, ought to be employed, and constantly persisted in. If from the beginning, according to Huxham *, the small-pox have a foul and livid appearance, and remain depressed, and the fever is rather of the slow kind, generous cordials must be exhibited, such as saffron, compound powder of contrayerva, musk, and the theriac of Andromachus ; nay, even sweet wine, whatever Sydenham may say to the contrary. Vinegar and vitriolic acid should be added to the ordinary drink, which may consist of barley-water, to correct the alkalescence and colliquative acrimony of the fluids, and restore its due crasis to the blood, which is almost in a state of dissolution. Likewise wine and water, or whey and wine, and bark taken in abundance †, and also camphor ‡, are preferable to other remedies, on account not only of the cordial, but also of the antiseptic power they possess. In the mean time, especially when the small-pox are of the confluent kind, the patients, if at any time, certainly now require the pure air, by which not only the more severe symptoms are corrected, or prevented, but even the eruption itself promoted, the pure air performing the part, as it were, of an attracting *menstruum*. And the efficacy of pure air in these

cases is so highly prized by Störck, that he thinks the patients, when they complain of cold and flying shiverings, on being carried to the open air, deserve no attention; in which respect, however, the physician would require being eminently distinguished for prudence and judgment to avoid the imputation of rashness, and prevent any accident happening to the patient.

* *De Aëre et Morb. Epid.* T. 2. p. 122. where he makes the following remarks. "In the malignant small-pox, in which the pustules are small, black, or attended with a black pit, if any hope remains, it is in alexipharmacs of a somewhat austere kind, with a great deal of acid, such as, the tincture of Peruvian bark, alexipharmacs with a great deal of the elixir of vitriol, frequently adding wine to these acids, especially when the fever is going off, with copious, acidulous, demulcent drink." † Tissot (*Ep. Var. Arg.* p. 32. 33.) says of the Peruvian bark, "that it is proper only in the malignant small-pox, in which the fibres are lax, the blood dissolved and putrid, the highest debility takes place, and the approach of gangrene is feared; that in that case, when given to the extent of three, four, or five drachms daily, it proves of the highest advantage." ‡ Camphor is useful in the malignant small-pox, especially when mixed with acids, as vinegar, with which it is easily dissolved when warm. It gently raises the strength, and stimulates the fibres, checks the putrid virus, and draws it to the surface. *Id.* l. c. p. 33. || *Med. Pract.* P. I.

248. In this lingering and difficult appearance of the eruption (245. 246.), or when the pustules remain depressed (247.) in consequence of the languid vital power, and greater malignity of the disease, when cordials and antiseptics are

considered as necessary, some practitioners, after the example of Morton and Meade, propose likewise applying blisters to the arms and legs. But when, together with the loss of strength, symptoms of putrid tenuity and colliquation are present, and there is a great tendency, all over the system, to corruption and gangrene (247.), we must not proceed to the employment of blisters and cantharides. For my part I consider it as safe to employ them in a case of great debility, in a case of atony of the solids, when the fever and heat are slight, and the crasis of the blood intire, no plethora being present, and when there is no fear of gangrene coming on, and much more still if the variolous matter, which ought to have been forced out, remaining in the system, attacks the head, fauces, breast, and abdominal viscera, injuring the functions of these parts. On the other hand, it is not safe, nay, it would even be pernicious, to employ them in circumstances the reverse of these *.

* Tissot in general condemns blisters in the cure of small-pox, 1. because they increase the fever, inflammation, heat, and putrefaction; 2. because they irritate the skin, while the inflammation, tension, and pain ought to be mitigated; 3. because they rather check than excite the flow of urine; 4. because they increase the pain, and consequently the restlessness; 5. because they check the discharge by the belly. For which reasons he intirely reprobates their use even in the comatose affections, for the discussion of which they are commonly used, if these affections proceed from the violence of the fever

and fulness of the vessels. Hence it appears what caution and attention are requisite before having recourse to the use of blisters. (*Ep. Var. Arg.* p. 26.). Nor does Meade (*De Var.* p. 72.), speaking of blisters, explain himself with less caution, as he mentions that they may be applied to the arms and legs, when, in the case of a very bad complaint, the pulse is small and languid, without any remarkable swelling of the hands, and the patient is rather in a state of torpor, than distressed with too much heat.

249. But the eruption is not retarded or depressed by these causes only (245. 246.). Sometimes the fulness of the vessels, the increased motion of the blood, and the phlogistic diathesis which is pointed out by the great, strong, and hard pulse, and sometimes by the difficult respiration, retard its appearance. In which case, not cordials, nor exciting, nor healing remedies, but bleeding, refrigerants, diluents, and other antiphlogistic means promote and keep up the eruption *. Sometimes, likewise, a colluvies in the *primæ viæ* opposes the eruption, by inducing spasms, and weakening or checking the motion of the heart. In that case it is evident that the eruption will be promoted merely by evacuating the noxious cause. Hence either emetics, which are considered by Huxham as being very efficacious in forcing the variolous matter to the surface, or gentle cathartics, especially in the confluent small-pox, in which part of the abundant variolous matter may be very advantageously

drawn off by purging †, remove the cause of the retardation or subsiding of the pustules.

* Home, *Princ. Med. De Morb. Febr.* sect. vii. Likewise Wintringham (*Edinb. Medic. Essays*, vol. ii.), who, perhaps, on this account, never saw antiphlogistics and moderate laxatives prove hurtful in robust and plethoric young people with dense compact blood, but on the contrary always found them prove serviceable. † For Simson (*Ed. Med. Essays*, Vol. vi.) always found gentle purging from the first eruption of the pustules to the commencement of the suppuration, attended with advantage in the confluent small-pox.

250. But if the fauces in this stage, as generally happens (171.), are painful, swelled, and inflamed, in consequence of pustules having arisen there, rendering deglutition difficult, the pain ought to be constantly mitigated with a mucilaginous linctus, and tepid, emollient drink, frequently taken; and a gargle of the same kind should be employed. Decoctions of marsh-mallow root, barley, and mallow-flowers, either alone or mixed with milk, fulfil both intentions. But if these fail, and the evil increases, and like an inflammatory sore throat seems to threaten suffocation, and is attended with excruciating pain, while the other symptoms do not contra-indicate it, the magnitude of the danger must be obviated by bleeding *. After it, if there be occasion, we may produce revulsion from the fauces by a gentle cathartic of cassia, or manna, by pediluvium; and when the danger is more urgent, by a blister applied to the nape of the neck, or by

furrounding the neck with an emollient cataplasm.

* The reader will perhaps be surprised, that in the course of treating of the cure of small-pox, I have neither here nor elsewhere made mention of cupping-glasses, which several propose employing in this complaint. The cause of my not having done so is obvious: I consider that bleeding is more safely performed by opening a vein, than by scarifying the skin, in diseases in which the excessive tenuity of the blood may occasion fatal hemorrhages.

251. It is likewise proper to pay attention to the ptyalism which from the beginning of the eruption, or a little after, certainly attacks adults; at least such as labour under the confluent small-pox in particular (287.), generally proving copious as it ought to be, in order that part of the variolous virus may be discharged in this way to the great relief of the patient. Caution, therefore, ought to be used that it may not be checked by sudden cold, or cold drink, or by a diarrhœa, or by narcotics, or astringents. For this would be certain death to the patient: for nothing more certainly promotes and keeps up this flow of saliva than the frequent drinking of tepid diluents. Sometimes that salivary fluid, which is constantly discharged, is possessed of such acrimony that it corrodes and ulcerates the parts like a caustic. It is proper in that case not only to wash the mouth and fauces with milk and water, or decoctions of barley, or of marsh-mallow root; but great care must be taken that it may not be swallowed,

if we would prevent the bad consequences, already taken notice of (188.) from Sagar.

252. In this stage, likewise, there are sometimes hemorrhages, phrenitis, delirium, comatose affections, convulsions, anxiety, watching, and other very severe symptoms, especially in the malignant confluent small-pox, in which the matter being imperfectly forced out, passes from place to place, attacking the internal parts, and aggravating the fever, together with all its symptoms. I have already shewn (239. 240. 242.) the treatment which ought to be employed in the hemorrhages, in phrenitis, in both kinds of coma, and in the convulsions. But the watching, which is generally of long continuance, the anxiety and restlessness, if they come on, being generally the peculiar marks of malignant confluent small-pox, can scarcely be passed over without some attention being paid to them. For removing these, therefore, most writers, since Sydenham's time, inculcate the copious and frequent use of narcotics in this stage*. For immediately after the first stage they every night prescribe the syrup of diacodium, or an emulsion with syrup of white poppy, or syrup of meconium, or laudanum, or pure opium, or pills of cynoglossum, in doses adapted to the patient's age. Thus they affirm, that they provide not only against the watching, restlessness, and delirium, but also fa-

vour the increase and filling of the pustules ; and so confident of this are they, that if they do not procure rest and sleep by the exhibition of a narcotic in the evening, they repeat it in the morning, and even during the day, until sleep is induced. But it is said to be allowable principally in young people and adults, since infants are very apt to be injured by narcotics †, unless they are employed with the utmost caution. Others, however, entertain an intirely opposite opinion, and advise the greatest care to be employed in prescribing such remedies, having learnt by experience that they occasion a more copious flow of the blood to the head, oppress the brain, suppress the ptyalism which is so necessary, and check the useful discharge by the bowels. Nay, Simson adds ‡, that the patients on the eighth and ninth day, in consequence of the continued use even of the syrup of white poppy, which the followers of Sydenham recommend, expire oppressed with delirium, angina, or peripneumony. Sagar ||, also, mentions their having proved hurtful in the epidemy which he has described §.

* Meade, *De Var.* c. 3. † Sydenham (*Dissert. Epist.*), in the cure of the confluent small-pox, trusted so much to pargorics, that he upheld them as specifics, in the same manner as the bark in intermitting fevers. ‡ *Edin. Med. Essays*, vol. vi. || L. c. § Sometimes in the most benign small-pox of infants, when given to stop their crying on account of the pain of the pustules, although it was considered as harmless, it caused a great determination of the blood to the

head, and the eyes and eye-brows became swelled. Tiffot;
l. c. p. 11.

253. In so doubtful a case, as far as I can judge, it appears to me that we ought to proceed with caution to the employment of narcotics, and not unless when compelled by necessity. If the watching, therefore, continues so obstinately as to occasion mental derangement and reduce the strength, if the patients become very anxious and restless, if that happens either from the extreme itching or pain of the pustules, if derangement of the nerves and the highest degree of sensibility rather appear to be the hurtful cause than a phlogosis of the blood and internal parts; then, after diluents, correctives, and demulcent remedies have been used without effect, it will be allowable to allay these disorders with some mild paregoric, and to repeat it occasionally with caution; as in such a case even the most cautious practitioners do not altogether refrain from bland paregorics *. It must be observed, however, that watching of every kind ought not too hastily to be removed by employing soporifics, as it often happens in the confluent small-pox that the patient passes six or seven days without sleep, or experiencing any bad consequence from it, as Tiffot informs us †, while at the same time the ptyalism proceeds properly, and is attended with advantage, though, by means of the sleep, it might have

been stopt to the great danger of the patient. It will also be of great consequence to ascertain whether these remedies agree with the patients. For some idiosyncrasies are affected with them in such a manner, that the patients are rather agitated and heated excessively by them, than lulled to sleep. On which account it is better to abstain from them in such constitutions, the propriety of which is acknowledged even by their warmest advocates ‡.

* Simson, who reprobates all kinds of paretics, in the case of very obstinate watching, or intolerable itching, or when the pustules are attended with very uneasy pain, allows the patient some syrup of white poppy, providing the practitioner guards against the extent to which Sydenham and his followers carried that practice. *Edin. Med. Essays*, vol. vi. † *Ep. Var. Arg.* p. 16. ‡ Störck, l. c. p. 288.

THE SUPPURATION.

254. I HAVE already shewn by what means the eruption ought to be promoted and supported. It remains to mention in what manner the suppuration of the pustules ought to be brought about, since, in consequence of being attended with the most severe symptoms, it frequently threatens the greatest danger. In the distinct and mild kind, in the same manner as the former stages, the third one likewise is passed without great uneasiness. While the pustules, however, are inflamed, and the pus generated, the skin becomes tense and painful, the fever returns, or is increased, but, on

the suppuration being finished, it quickly departs. At this time the patients become restless, frequently cannot sleep, they complain of pain, and sometimes also of itching, in the pustules, and, if they ever enjoy sleep, they soon start out of it, mutter, and even become delirious. In general, all these symptoms are allayed, merely by diluent, subacid, and correcting remedies, and more spare diet. If, however, the watching, restlessness, and complaining of the patients, appear greater than usual, they receive certain benefit from paregorics administered with caution; and, in general, the various preparations of white poppy answer the purpose. There is seldom occasion for more powerful ones. Sometimes such is the violence of the suppuration, when the small-pox are very thick, and there is abundance of good and fibrous blood, that a more acute fever arises, attended with a strong, hard, great pulse, excessive heat, perpetual delirium, and the greatest restlessness, or difficult respiration, or severe inflammation of the fauces. In that case, besides the antiphlogistic remedies, the cold regimen, and the admission of pure air, blood may be advantageously drawn*; nor will the suppuration and maturation of the small-pox be injured by it, if only so much is taken as may check the excessive inflammation, and diminish the fulness of the vessels, without weakening the

patient too much. Well-established instances of this kind have again and again occurred in practice. When the belly is very costive, it will not be without advantage to relax it with a gentle cathartic, or at least to open it with injections. If the pain and tension of the skin are particularly severe in any part, the part may be fomented with tepid milk and water, by which it is not only softened, and the pain mitigated, but the suppuration itself proceeds more successfully. When the itching is very uneasy; it is of service to rub the part gently with some green plant, as mallows, pepper-minth, rue, or the like; taking care at the same time to confine the patient's hands in such a manner that he may not tear the skin with scratching himself too much.

* Every body must know, that blood may be let at any period of the disease, if real inflammatory symptoms appear. Tissot, who, I have already observed, is otherwise extremely cautious about bleeding, thinks it ought to be done as often as real inflammation is suspected to be present, even after a full eruption taking place (*Ep. Var. Arg.* p. 38.). Freind (*Epist. de Purg. in Secund. Var. Confl. Febr. Adhibend.* Hist. 2.) mentions three powerful monarchs having been saved by bleeding during small-pox, much about the same time; namely, Charles II. of Spain, Louis XIV. of France, and Charles II. of England. De Haën also experienced its utility, not only at every period of small-pox, but even after the pustules had dried and fallen off. *Rat. Cont.* T. 1. c. v. § vii. n. 7.

255. But, after the pustules have become ripe and filled with pus, nothing is more serviceable for allaying the pain, and preventing the absorp-

tion of pus and the formation of pits,—which are generally caused by the acrimony of the pus,—than the opening of the pustules themselves *, which was not only customary among the Arabians, but the propriety of which has been repeatedly confirmed in later times by the general experience of physicians †. But the pustules, when they are full of pus, are opened either with a needle or a pair of scissars, the pus is expressed, and the pustules afterwards wiped with a sponge dipped in tepid milk and water; and this is repeated as often as they appear to fill again ‡. After thus opening them, others wash them with wine, water, and honey ||, which is attended with most advantage when great fetor, a livid or black colour of the skin, and the thinness of the matter, give reason to apprehend a great tendency to putrefaction. In which case, likewise, some add to the wine a little of some aromatic §. After wiping the pustules in the manner that may appear best, particularly if the cuticle has been opened with a pair of scissars,—as is sometimes necessary to draw out all the pus,—I have frequently found the greatest advantage from coating them with the freshest oil of the yolks of eggs gently roasted, which mitigates the pain of the ulcer, blunts the acrimony of the fluid, prevents the bad effects of the external air, and promotes the healing of the skin. But opening them in

this manner is not only proper when the pustules are full of good-conditioned pus, but in those also which contain sanies, or a thin fluid, and are very apt to become depressed. For, by drawing out the variolous matter by an incision, the worst kinds of metastases are prevented, and a great part of that fomes is removed, by the striking in of which the secondary fever would be aggravated.

* Tiffot, *Ep. Var. Arg.* p. 42. 43. † We are informed by De Haën, that upwards of two centuries ago Marquard, a professor in Vienna, and afterwards Raym. Jo. Fortis of Padua, and the French and Italians long ago, employed this mode of opening the pustules with success (*Rat. Cont. T. i. c. v. § vii. n. 6.*). Azzoguidi (*Lett. citat. p. xlii.*) recommended it, after its use had been restored by Holland, and being employed by Senac, Tiffot, De Haën, Home, and others. To these names must be added that of Sidobre (*De Var.*), and Wintringham (*Com. Nofol.*), (See *Edin. Med. Essays*, T. 2.), and not a few besides; among whom we must not omit the name of Varnier (*Journ. de Med. T. v. p. 152. Août. 1756.*), who, as he frequently had observed that gangrene and putrefaction occurred in corpulent patients labouring under confluent small-pox, not only employed the more powerful antiseptics, but advised the opening of the pustules when ripe, and washing the whole body with aromatic wine. For my own part, I have very frequently opened ripe and full pustules, as well as such as had begun to be depressed; and so far from having ever known any bad consequence arise from it, I have often observed the highest benefit produced by it. We need not, therefore, attend to Diemerbroeck and a very few others, who reject the opening of the pustules; far less is Ludwig to be listened to, who, although he has reprobated it (*Advers. Med. Pract. V. i. P. 3. p. 473.*), elsewhere (*Inst. Med. Clin.*

P. 1. c. 1. § cciv.) thinks it better to open the malignant and confluent kind, to procure a passage for the pus. ‡ Quarin, *Metb. Med. Febr.* c. viii. p. 99. || Azzoguidi, l. c. § Var-
nier, l. c.

256. Such (254. 255.) are the precautions usually adopted in treating the suppuration of the small-pox, which follows according to the laws of nature. But when the small-pox are malignant and anomalous; especially in the confluent species, or that which approaches to it, they occasion more trouble. For they frequently do not suppurate at all, or with great difficulty (180. 181. 182. 183. 202.); or during the suppuration suddenly become depressed, and in consequence of the pus retiring in, become empty (183.); or those which were already depressed and livid on the margins, in this stage only become white on the tops, being almost void of any fluid (282. 299.); or they remain completely depressed, as formerly, nor are they ever raised, but assume a dark colour (189.); or the pustules being flaccid, low, and without any red circle, and the surrounding skin being pale and lax, the whole face is marked with a leadish white colour (194. 195. 196.); or, the suppuration being defective, the pustules without ripening terminate in a dry crust, at first sanguineous, then black (*ibid.*); or they become livid and slightly bloody in appearance, and, pouring out blood, quickly become black and gangrenous (197. 198.). When

these things occur, the patient is threatened with the most dangerous symptoms, as phrenitis, angina, suffocation, peripneumony, convulsions, strangury, hæmaturia, and other most fatal symptoms *, nay, frequently with sudden death itself.

* Most of these symptoms, it is said by the followers of Sydenham, may be either intirely prevented, or rendered much milder, by the patient's remaining out of bed, by moderate walking in the open air, and by continuing awake in the day-time. And they affirm, that while the suppuration is going on, no danger is to be apprehended from the pure air being employed, as both the suppuration and exsiccation of the pustules go on better in the open air, provided it be of a moderate temperature, even in those patients who, during the suppuratory fever, have a ptyalism and difficult deglutition; for they affirm that they are rather relieved, and the ptyalism kept up by it (See Störck, l. c. p. 272. 273. 274.). And, with regard to remaining out of bed, Tissot thinks it chiefly necessary in a state of violent inflammation of the pustules. For its effects are said to be, 1. diminution of the fever; 2. more easy respiration; 3. relief to the head; 4. cooling the loins; 5. the dissipation of the putrid effluvia; 6. the advantages derived from a constant renewal of the air, whether the patient sits in a large open room, or walks about moderately (*Ep. Var. Arg.* p. 39.). They grant, however (Störck, l. c. p. 274.), that sudden cold should be avoided, as well as too windy cold air. And although we allow that the pus, which is generated in the benign and ripe pustules, from its thickness is not apt to retire in consequence of the cold air, that cannot be affirmed with equal truth of the ichor and thin serous fluid, which is generally collected in the benign confluent small-pox, and the species which is slow of suppurating. For it seems probable enough, that on any slight occasion it is absorbed and forced in from the admission of cold or pure air. Harvey, of whom mention has already been made, gives the history of a variolous patient,

whom he ordered to be bled before the eruption, on account of a catarrh and sore throat with which he was affected. But, on account of its having been neglected, the patient, by his apothecary's advice, having done many things that only otherwise healthy people would have been allowed to do, walking in the open air, although the small-pox were confluent, and had suppurated; in consequence of his omission lost his life (*V. Art. Cur. Morb. Expect.* p. 159.). Nor are the distinct and benign small-pox altogether insured against such an accident happening. I remember of a young lady of distinction having been so affected, in consequence of the window being rashly thrown open during the presence of the suppuration, though the complaint was very mild, that shortly after a metastasis having taken place to the brain, she was suddenly seized with a fatal epilepsy. I have likewise seen a boy, who, when affected with the distinct small-pox, though few in number, notwithstanding that, during the whole course of the disease, he scarcely seemed to be unwell, and therefore constantly sat up in bed, very slightly covered; at length, in consequence of the pustules drying up too soon, was seized with cynanche laryngea, which, if bleeding had not been quickly employed, would probably have proved fatal. During the suppuration, therefore, the patients ought not to be exposed to the open cold air, without great caution; and as the renewal of the air and ventilating of the apartment are necessary, the rules already down on that subject ought to be observed.

257. In particular, however, to these symptoms (256.) is added a violent fever, or that which is already present becomes greatly aggravated, observing the type of a continued remittent, very dangerous, and is commonly called *secondary*, which, if it does not quickly prove fatal, continues long, and exceeds the period of suppuration (201.), differing greatly, if I mistake

not, from the fever of short continuance, quickly disappearing after the suppuration, as being the offspring merely of the suppuration (254.), which Sydenham therefore called putrid, employing the term, as I imagine, in the sense of the ancients. It seems proper, therefore, to distinguish it from the suppuratory fever, which follows the maturation of the pustules, because it is excited by the pustules not suppurating at all, or with difficulty, and imperfectly. It appears, therefore, highly probable that it arises from the variolous matter being retained in the blood, or from the disposition of all the fluids, particularly of the fat, being vitiated by the variolous virus, and assimilated to it, or from the ichor of the pustules being absorbed, or, as is not unfrequently the case, from internal inflammation, or from all or most of these causes combined. Hence it must appear evident to every body, that all manner of care should be taken (256. 257.) to draw all the variolous matter to the surface, and, as far as possible, to promote its being converted into laudable pus by suppuration; or, if that cannot be done to immediately cause its expulsion by some other passage. Which is generally attempted to be done by gentle, tonic, antiseptic cordials, and by all kinds of evacuation and revulsion, concerning which we have already spoken, and shall still have occasion to speak hereafter.

258. But it must be remembered, in particular, that nearly the same remedies are necessary to fill and support the small-pox, or to promote their supuration, as those by which I have already shewn (145. to 149.) that the eruption itself is assisted, or the depression of the pustules corrected, providing proper attention be paid to the remarks and cautions laid down there *. They may be, therefore, applied here. But it can scarcely be conceived how much some men of the greatest learning, after the example of Sydenham, trust to narcotics and opiates in this stage. For if, as most frequently happens in the malignant small-pox on the eighth or ninth day, the pustules become depressed or brown, or black, while the rest of the skin becomes flaccid and livid, attended with a very languid pulse, sometimes coldness, sometimes heat of the extremities, paleness and redness of the face succeeding each other, and, lastly, spasmodic affections of some parts ;—then, besides the other remedies elsewhere recommended, they have no hesitation in resting all their hopes on the copious and frequent use of opium, or other narcotics, as I have already hinted.

* But I did not adduce all the precautions there. It is necessary to add one of the highest utility from Sydenham. He remarks, that the depression of the pustules in the confluent small-pox ought not always to be ascribed to external causes, cold, as there is nothing in it which does not proceed from the nature of the disease ; and no bad consequence, therefore,

arises from it when it observes the usual progress. The natural flatness and depression, therefore, must not be mistaken for the subsiding or striking in of the variolous matter. In the distinct kind, again, the practitioner must be on his guard against expecting the eruption, or increase of the pustules, before the proper time, but ought to attend to the time when nature ought to bring it about. Sydenh. *Op.* sect. 2. c. 2. p. 179. 180.

259. Hence some of them advise every fifth or sixth hour giving eight or ten drops of laudanum (to adults I suppose), or, when they do not wish to act so decidedly, every two, three, or four hours, two spoonfuls of some paregoric and cordial mixture, containing seven ounces of the water of teal-flowers, an ounce and a half of syrup of diacodium, to which they occasionally add some vitriolic acid, in such quantity as to produce an agreeable degree of acidity, in order to allay the heat of the blood, and check its dissolution. They likewise employ this mixture boldly, if, during the time of the suppuration, the patients be anxious and restless, or feel exquisite pain, and if there be unusual heat of the blood; provided the pulse be soft and free of all hardness or tension. For by means of it they assert that the strength is quickly improved, the pustules raised, become red, and suppurate, the bad symptoms are mitigated, and the danger which is threatened averted. But, on obtaining the effect desired, they very carefully advise laying aside these paregorics in the day-time, administering

them in the evening only, that a tranquil night may follow *. Others, however, conduct themselves with more caution in the employment of opium. Tissot, who almost intirely rejected narcotics in the two first stages of the complaint, thought them of no greater efficacy in the third, in which the suppuration and secondary fever occur †. For he remarks, that then, in particular, lethargy, coma, and orthopnoea, distress the patient, in consequence of a metastasis of the variolous matter and congestion of the fluids, and that such direful symptoms must evidently be increased by employing narcotics, while all the excretions, which are then highly necessary, are checked, to the patient's great hazard. Nay, that there is reason to apprehend, that the anxiety, delirium, heat, and thirst, already very troublesome, are increased by them, or that phrenitis, peripneumony, hepatitis, ischuria, gangrene of the intestines, and other fatal complaints, are induced. Meade himself ‡, as the disease draws to an end, if dyspnoea comes on, and the fauces are filled with viscid phlegm threatening suffocation, which frequently happens, on the ptyalism ceasing, intirely rejects the use of opium as hurtful. From this variety of opinion, however, let no one infer that he is at liberty to chuse which he may, or embrace one in preference to the other without deliberation; since it appears intirely consistent with reason (as I have already shewn) to suppose,

that the employment of opium at one time will be highly salutary, at another hurtful, according as the vital powers are to be roused, or excessive sensibility allayed, or a disordered state of the nervous system checked. In both cases, however, moderation must be observed, and care should be taken not to exceed bounds either in employing or rejecting opium, while all the particulars || ought to be deliberately considered.

* Störck, l. c. P. I. p. 287. † L. c. p. 17. ‡ *De Var.* c. 3.
 || Although Tissot seems frequently to condemn the use of opium in small-pox, yet he declares that he is not so averse to it as at all times to object to employing it. He with good reason contends, that its employment ought to be limited, and points out, with sufficient precision, when it is preferable to abstain from narcotics, and when they may be used without risk. It will not, therefore, be superfluous to enumerate the cases in which,—according to this author,—it is by no means improper to have recourse to narcotics; and these are, 1. when debility is present, requiring cordials, and when it is necessary to draw the variolous matter from the internal parts to the surface (as in the first stage of small-pox), while the pulse is weak and irregular, and the patient cold, and inclined to faint; 2. when spasms, arising from excessive mobility, require being allayed; 3. when the pustules are attended with intolerable pain; 4. when the fluids, during the eruption, pass to the intestines, and the excessive looseness threatens the exhaustion of the strength; 5. in the case of a colliquative diarrhœa, attended with fainting and coldness of the extremities; 6. when a diarrhœa comes on during the exsiccation, if it be excessive, if it exhaust the strength, render the pustules pale, and deprive them of their fluid, occasioning syncope, or delirium, and coldness of the extremities; 7. when colic-pains, towards the end of the disease, succeed to the long-continued and liberal

use of acids; 8. after administering a cathartic in the last stage. Tiffot, l. c. p. 22. to 26.

260. But nature herself endeavours to supply the place of the imperfect ripening or depression of the pustules, by the ptyalism in adults, and the diarrhœa in children, as I have already shewn. We must, therefore, endeavour by all means to keep up the flow of saliva, as far as possible, which is best done by the liberal use of tepid, diluent drink, with the addition of honey. But if it is so viscid and tenacious, as to be rejected from the fauces and mouth with the utmost difficulty, endangering suffocation,—which not unfrequently happens about the eleventh day,—it ought to be attenuated by means of a gargle of the water of elder-flowers, or a decoction of figs and liquorice-root, with the addition of a little honey of roses, or simple oxymel, or syrup of mulberries. But if the patient cannot gargle his throat, or is averse to it, or if it does not answer the purpose, the same remedies may be frequently injected, both day and night, into the mouth and throat, by means of a syringe*, notwithstanding of the objection of others to this practice. Sydenham† proposes a gargle composed of small-beer, or barley-water, or one made as follows:—℞ Cort. ulmi drach. 6. glycyrr. unc. sem. passular. enucleat. xx. rosar. rubr. pugn. duos. Coq. s. q. aq. ad lib. un. et sem. Col. dissolv.

oxymel. simp. et mellis rosar. ana unc. duas. *M.*
f. garg. But when the patient is threatened with
suffocation, he advises the exhibition of an eme-
tic, than which nothing is found more efficacious
sometimes, although he confesses that it does not
always answer the purpose. But the saliva is
sometimes extremely acrid, in consequence of
which the inside of the mouth is ulcerated, and
becomes very painful, as if it had been burnt. It
must then be gargled with barley-water and milk,
or a decoction of marsh-mallow root, or a simi-
lar demulcent fluid, to which may be advanta-
geously added, some *sedum majus* ‡, or mucilage
of flea-wort seeds, or quinces. The small ulcers
may be treated with the remedies already men-
tioned when I spoke of the aphthæ ||. But as
the prolonging of the ptyalism in adults is highly
necessary, it is likewise proper to allow the diar-
rhœa, which attacks children, to go on as long
as the strength will permit; nay, if it be acci-
dentally stopped, it ought to be excited anew with
bland injections; nor should it ever be checked
in this stage, unless it be excessive and exhaust
the strength. On the whole, if the acrid humour
descending to the intestines corrodes them,
and gives rise to gripes, as sometimes happens
when dysentery prevails epidemically,—for then
only the small-pox are combined with dysentery,
—we may have recourse to demulcents, and the

other remedies employed in treating the latter disease.

* Sydenh. *Op. Omn.* sect. 2. c. 2. p. 177. Tiffot, *Ep. Cit.* p. 42. Störck, l. c. P. I. p. 274. † L. c. *ib.* p. 177. 178.
‡ Störck, l. c. || Vol. i. § ccxcvi.

261. In the mean time, sometimes the mouth and fauces are covered with a hard and thick crust of the variolous pustules, by which the respiration and deglutition are greatly impeded. In that case they ought to be constantly fomented with emollient remedies, as tepid water mixed with milk, to cause the separation of the crust. The nostrils likewise are often obstructed from the same cause. When that happens, the vapours of warm water may be drawn in by the nose or mouth, or water with honey may be injected into the nostrils by means of a siphon or syringe, by which the crusts, being softened, are separated, and the patient receives the greatest relief*. Sometimes, also, in the malignant and confluent small-pox, when the pustules ought to ripen, the face becomes black, and covered with a dry crust, which is truly gangrenous (195.). In that case the skin ought to be scarified repeatedly and deeply, even to the sound flesh, and afterwards fomented with a warm emollient decoction, containing spirits of wine and camphor. After this a great deal of fetid pus generally flows from the incisions, and the mortified parts separate. When the digestion

of the gangrene is completed, a cathartic ought to be administered. Meade † records an instance of a successful cure of this kind; and I myself have been informed of another, by Guattani, a surgeon of considerable eminence in Rome, who, when a boy, laboured under a very dangerous gangrenous species of small-pox, and was cured in consequence of his father having employed a similar method of treatment, which caused his face afterwards to be marked with very disagreeable scars, affording a remarkable proof of his father's boldness, and the success of the plan he had adopted. And if gangrene occurs in any other part, it ought to be treated in the same manner.

* Sydenh. *Op.* sect. 3. p. 177. Tiffot, l. c. *ib.* Störck, l. c. p. 275. † L. c. c. 3.

262. Very frequently in this stage, the face, hands, and feet, become too swelled, tense, painful, and red. The remedies are, fomentations of water and milk, or very emollient cataplasms. For, by means of them, not only are the pain and tension mitigated, but likewise the suppuration of the pustules is facilitated *. But the best practitioners agree in turning their attention in this stage particularly to the secondary fever and its symptoms. Sydenham was of opinion that it ought to be powerfully opposed by immediate and copious bleeding and purging alternately, in such a manner, however, that he employed the purging only after bleeding, and not

before the thirteenth day of the disease. In both ways he proposed to himself diminishing the inflammatory disposition of the blood and quantity of the purulent matter †. But Sydenham's rule must not be adopted without caution. For it is not always, nor in every secondary fever, safe to bleed or purge; nor is it always necessary for the bleeding to precede the purging, when the latter is employed; nor ought we always to wait for the thirteenth day before purging, as it may be necessary even before this period, and sometimes even on the ninth or tenth day ‡. But I shall immediately proceed to state my sentiments concerning each kind of evacuation, and shew when I think both, or one or other, ought to be allowed, and when not.

* Störck, l. c.

† *De Febr. Putr. Var. Confl. Superv.*

‡ Freind, *De Febr.* comm. vii. and Meade, l. c. c. 3.

263. To begin, therefore, with bleeding; we must carefully inquire whether the symptoms indicate the small-pox of the inflammatory kind; or if the fever is very violent, accompanied with a strong, hard pulse, great heat and thirst; whether the patient be of a stout habit of body, young, and accustomed to exercise; whether he has been addicted to heating meat and drink, or has employed a warm regimen; or if bleeding has been neglected at the beginning: it will then be proper to let blood, especially if it be in-

dicated by severe symptoms, as phrenitis, coma, convulsions, suffocation, and peripneumony. Nor is the physician to be deterred from it, if it be indicated in other respects, by the smallness or weakness of the pulse, because the arteries then subside, not in consequence of want of strength, but from being oppressed, and, on the superfluous quantity of blood being removed, generally rise again and beat with greater violence. It must also be remarked, that during the prevalence of an inflammatory diathesis of the blood, the internal parts are frequently affected with inflammation, in consequence of which the secondary fever arises, without the small-pox being depressed; which is a proof that it does not arise from depression of the pustules, or absorption of the pus,—as the small-pox are raised and filled with laudable pus,—but from inflammation of some of the viscera. In this case, also, the greatest advantage is to be derived from speedy and copious bleeding. On the other hand, when the symptoms peculiar to the nervous or malignant fever occur (211.), or, which is worse, when symptoms of putrid dissolution appear (212.), as in the malignant confluent small-pox, and in some species of the distinct but gangrenous kind, of a bad disposition, especially when epidemic, it is absolutely proper to abstain from bleeding, although the secondary fever be pretty violent. For the

experiments of Sagar * likewise evince its hurtfulness in these cases.

* *De Var. Ignavien.* p. 44. 45.

264. It remains for me next to speak of the employment of cathartics in the secondary fever. Most authors, after Sydenham, Freind, Meade, Huxham, and others, are of opinion that it ought not only to be removed, but prevented by them. Nay, they affirm *, that sometimes relief has been obtained from no other medicine, especially when, in certain cases, calomel and purgatives are interposed at the proper time. Tiflot—not only in the confluent small-pox, at the commencement of the secondary fever, but also in the distinct ones, when copious,—recommends the administering of manna in such a dose as to produce three, four, or five stools, which is generally serviceable on the ninth or tenth day, and proposes continuing its use even for some days after. So much does he rely on this medicine. Nor does he do so without reason; for the intimate consent between the skin and intestines is well known, which led Hippocrates to observe, *Cutis laxitas alvi adstrictio, et vice versa*: or that the excretions of these parts alternate together.

* Huxh. *De Aëre, et Morb. Epid.* T. i. p. 37.

265. But purging must not be employed indiscriminately; for, like bleeding, it also has certain bounds beyond which it is improper to go.

It almost invariably holds, that in the secondary fever, which comes on without any suppuration of the pustules, or when those on the face in particular dry prematurely, and the swelling at the same time disappears, purging * is commonly considered as necessary, and still more if, in consequence of the variolous matter remaining in the system, an ardent fever arises, accompanied with restlessness, short and frequent respiration, thin urine, and constant watching. In that case, after bleeding, if it has been properly indicated (264.), gentle cathartics, repeated at intervals, successfully draw off the variolous colluvies †. But it is likewise highly serviceable after the pustules have undergone proper suppuration, and are filled with pus, although none of the pus passes out of the pustules, or along with the urine, and no sediment is observed in it ‡; or, lastly, if the pustules have fallen of a sudden, and the pus has retired into the system. There is likewise need of purging, if, on the ptyalism ceasing, and the swelling of the face subsiding, the swelling of the extremities does not come on, and there is no discharge of urine depositing a sediment, nor spontaneous looseness; or, which is worse, if coma, or delirium, or both supervene ||. But on delirium, coma, angina, or peripneumony supervening, purging is so proper, that we ought not to be deterred from it by the fear of the ptyalism being stopt by it; as in that case Tissot § is of

opinion, that more immediate advantage is to be expected from the looseness, than danger from the suppression of the ptyalism, which does not then afford sufficient relief; particularly if bleeding or cupping-glasses have already been employed, and with no effect ¶. Nor does lowness of the pulse always hinder the employment of bleeding; as it is frequently raised, and becomes stronger in consequence of bleeding**. It is likewise ascertained by experience, that the looseness is attended with advantage when the very acrid humour, with which the pustules when drying abounded, might induce gangrene of the skin ††.

* Meade, l. c. c. 3. † Salisbury Cade, *Epist. ad Freind*.

‡ Freind, *De Purg. in secund. Var. Confl. Febr. adhib. ad Rich. Meade*. || *Id.* l. c. hist. 3. § Tiffot, *Ep. Var. Arg.*

p. 46. ¶ Freind, l. c. hist. 2. ** Freind, *De Febr.*

c. vii. †† *Idem, De Purg. &c. hist. 3.*

266. On the other hand, it is more advisable to abstain from purging, while the swelling of the face and inflammation of the pustules continue, and the saliva flows properly, without being accompanied with any other more severe symptom*. But if the swelling of the face begins to subside, and the ptyalism is lessened, as happens in the confluent small-pox on the ninth, tenth, or eleventh day of the eruption, and at the same time the hands swell properly, and no symptoms of a worse kind appear, the whole business may be intrusted to nature†; or it will be sufficient in

the mean time merely to keep the belly open with clysters, if it happens to be bound. The cathartics also ought to be omitted, if there is a spontaneous diarrhœa, or if the bowels have already been purged by means of injections, or at least they may be deferred for some days, that the strength may not be altogether exhausted †; and still more if the belly is so loose as to endanger the inducing of debility, which generally happens in a putrid dissolution, chiefly of all the fluids, so frequently the concomitant of the malignant small-pox.

* Salisbury, *Ep. Cit.* † *Id. ib.* ‡ Meade, *De Var.* c. 3.

267. It is not sufficient, however, to inquire whether bleeding, or purging, or both, ought to be employed in the secondary fever. It is likewise proper to ascertain whether the variolous sanies is collected in any part under the dry cuticle. This is easily known by the touch, or by the epidermis bursting; for on pressure, or on an incision being made, pus is discharged. Then a passage ought to be speedily made for the pus, and the body should be nourished with proper diet, and antiseptics employed, that the patient may bear up under the disease, until the whole purulent matter has passed out, which Meade has sometimes observed to flow for twenty days, or even more, without affecting the patient's strength. While the purulent matter, in consequence of the cuticle cracking, continues to flow out from the skin, and in this manner evacuates the system, the

practitioner ought to act with caution, and neither by bleeding nor purging interrupt that salutary evacuation. In the mean time, in the third and following stage of the complaint, the whole skin ought to be kept clean of the pus and putrid halitus, by frequently changing the bed-cloaths and linen, and carefully ventilating the room *. I shall not here omit to mention, that sometimes towards the end of the suppuration, or beginning of the exsiccation, most dreadful pains in the bones come on (as I have already mentioned on Sagar's authority), which, if they exceed twelve, or twenty-four hours, occasion certain death. They ought to be alleviated with anodyne fomentations of tepid milk, with drinking an infusion of teil-flowers, and wild poppy, and also with syrup of diacodium in the water of teil-flowers; experience having shewn the advantage of employing these remedies †.

* Tiffot, *Ep. Cit.* p. 40. † Sagar, *De Var. Iglav.* p. 19.

268. It was proper to make these general remarks when treating of this stage of the complaint. It remains for me now, according to the plan I have laid down to myself, to subjoin some particular observations concerning the cure of certain species of the complaint. Sydenham used to cure the *anomalous confluent small-pox*, which I have already (195.) described after him, in the following manner. As he discovered in this species of the complaint, excessive heat of the blood, and a kind of burning acrimony occasioning col-

liquation and corruption of almost all the fluids; he thought that it required being checked in the most decisive manner. Besides narcotics, therefore, which are usually employed in other species of confluent small-pox, he had recourse to the *cooling regimen*, and the liberal drinking, not of calefacient drinks, but of those which at once allay the most violent heat. With that view he recommended the *decoctum album*, which is composed of bread, and a small quantity of burnt hartshorn, mixed with a great quantity of water, and slightly sweetened with sugar. He also employed with the same view *hydrogala*, “consisting of three parts of water and one of milk boiled together, which generally proved more agreeable to the patient than refrigerant.” Nor did the liberal use of drink prove serviceable merely by allaying the excessive heat, excited along with the fever during the time of maturation, but likewise by promoting and keeping up the ptyalism longer than would have happened, had not the heat been diminished. It likewise afforded relief when an immoderate flow of the menses came on, provided the depression of the pustules was not apprehended from such a profuse discharge, and heating remedies, which occasion greater colliquation in the blood, were not improperly employed on that account.

* *Oper. sect. 3. c. 6. p. 231.*

269. In the fatal malignant and confluent epi-

demy, in which the pustules subsiding occasioned death on the eighth or ninth day, and which was of a truly putrid kind (198.), as Haller observed that this symptom universally proved fatal, he began to consider in what manner so great an evil might be averted. Acids and refrigerants, on account of the pustules, as I have already observed, being very apt to become depressed, seemed to him to be of a doubtful nature. He found emulsions, clysters, and cathartics, which other physicians employed with great confidence, quickly give rise to palsy, aphonia, dropsy, or even sudden death, in consequence of the pustules striking in; nor did he find the employment of calefacients less pernicious. He mentions, that in it "there was present a high degree of alkalescence of the fluids, in consequence of which both the pustules and breath of the patients had a horrid smell. There were also present in the fluids a fatal lentor,—as was evinced by the spots, which are in fact small sphaceluses,—together with pains of the loins, and scanty, greenish urine." A medicine was therefore required to dissolve the impacted humours, without bursting the vessels, to increase the motion to the surface, without aggravating the fever, and to raise the pustules about retreating into the system, without exciting the alkalescence present in the fluids. Camphor appeared to him to possess these properties. On which account, whenever symptoms prognosticating small-pox of a bad kind occurred, as "delirium on the first day,

violent fever, pungent pain in the loins or breast, difficult respiration, when the patient was corpulent, grown up, and plethoric, he immediately gave a diluent decoction liberally,—that is, to the extent of a few pounds daily,—made of aperient plants, as *sarsaparilla*, the roots of *grafs*, *adanthum*, *daify*, or *figs*.” He abstained from bleeding, however, although at first sight it might appear proper, because perhaps the very great tendency to putrefaction, which he observed in the disease, made him consider that remedy as hurtful. But he promoted “the vomiting, which was almost a constant symptom, by means of an emetic, so as to occasion full vomiting at least eight times.” For if the vomiting was checked, the disease always terminated more unfavourably. But although he carefully guarded against bleeding, he found that the hemorrhages were not alarming, having learnt by experience that they were in some measure to be desired; particularly as he observed in a boy of seven years of age an hemorrhage from the anus, before the appearance of the eruption, followed by a very mild disease.

* *Opusc. Path. obs. xliv. Hist. Const. Var. an. 1735. p. 113.*

270. But when, in consequence of advice of the domestics, or through the fault of the patients themselves, the small-pox were hastened by warm remedies, after great anxiety they appeared prematurely very black; but if they appeared spontaneously on the third day, and the

symptoms were relieved in consequence, still the pustules fell on the sixth day, and were marked with a black spot, as is usual in the malignant confluent small-pox. When either of these accidents befel the patient, he administered camphor dissolved in some emulsion, so that twenty grains should be taken within twelve hours. He began to employ it at midnight, after the fever had taken a turn, and continued it till next day at noon, dividing the intire dose into six parts, so that one might be taken every hour. And at three, four, or at most five in the afternoon, he gave the syrup of white poppy, with nitre and a little pure citron-juice. To an adult, when violently affected, he gave an ounce and a half of the syrup, and six drachms of citron-juice. In this manner the delirium was allayed. He continued this plan of cure even until the drying of the pustules. But as soon as he found the ptyalism in adults diminished, and the throat become dry and sore, which took place from the ninth to the tenth or eleventh day, at the same time the exsiccation of the pustules coming on, during all this time he endeavoured to prevent the fatal angina, and to excite the ptyalism, by frequently injecting honey of roses and nitre through a siphon into the throat, notwithstanding that Hoffman, though unjustly, reprobates this practice. In the mean time he allowed diluents in abundance, together with acids and demulcents. But he gradually diminished the quantity of the camphor, so that he omitted it

altogether on the ninth day, when nothing remained to be expelled, and the secondary fever was about taking place. Thus the black pustules disappeared about the eighth day, and “gradually became first red, and at length pale.” At this period, likewise, he loosened the bowels by means of an injection with nitre, having learnt by experience, that a diarrhœa rendered the secondary fever of the eleventh and twelfth day milder, “while it would otherwise have become fatal, attended with a new delirium, anxiety, angina, soft, irregular, quick pulse, and a most offensive smell of the whole body.” But if a more severe fever came on, he allayed it by giving a cathartic composed of tamarinds; nor did he omit doing this even in the highest degree of debility; nay, he repeated it on the twelfth and thirteenth day, if it was necessary. By these means he almost cut short this dreadful complaint, as well as by preparations of poppy, and citron-juice, and other means adapted to the patient. But during all the stages of the disease he religiously abstained from flesh and soups of all kinds, giving only herbs and fruits, and always prescribing the same drink, but in greater quantity, and more frequently.

271. It is surprising that Sydenham, who first of all employed the vitriolic acid * in the malignant and gangrenous small-pox, mixed with the drink so as to render it agreeably acid, during

the whole first and second stage of the complaint, during the suppuration and secondary fever, either reprobated, or, as I have already (268.) shewn, omitted it; and that Haller, in the very putrid kind of small-pox just mentioned, considered it as suspicious, or hurtful (269), nay, in this stage, the cure of which I am at present discussing, almost abstained even from the vegetable acids; since there is not in the whole *Materia Medica* a medicine more efficacious for checking the dissolution of the blood, and preventing putrefaction. But the vitriolic acid is of singular efficacy in the hæmaturia, which is occasioned in this stage of the complaint in particular by the extreme dissolution of the blood; for if it yields to any remedy, the only hope remains in the liberal employment of the strong acids. At the same time we must not omit those remedies, which I have elsewhere mentioned (242.) as restraining such hemorrhages, as the *ferum lactis aluminosum* †, as it is called, alum itself, and the specific of Helvetius ‡, when other means have failed, and no congestion in the lungs or other viscera forbids the employment of astringents. But the apprehension which is sometimes entertained of suppressing the ptyalism, or reducing the strength by means of these acids, is almost groundless ||, if we are to believe the testimony of physicians who have experienced their

effects, and in the latter case do not neglect to combine the acids with cordials and slightly aromatic remedies, such as the virginian snake-root, and contrayerva, camphor, and particularly peruvian bark, which, on account of its antiseptic quality, can scarcely be omitted without injury in the putrid and gangrenous small-pox, or in those in which there is a tendency to corruption from any other cause.

* *Oper. sect. v. c. iv.* † The serum aluminosum of the London Pharmacopœia is made as follows: Rec. Lactis vaccini lib. i. alum. crud. in pulv. redact. drach. ij. Coque, ut fiat serum lactis probe a coagulo separandum. ‡ The specific of Helvetius is thus made: Rec. Alum. crud. pulv. unc. ii. Sang. dracon. in lachrym. unc. semis. Liqueatur alumen ad ignem in vase argenteo, aut fictili vitreato; fuso insperge sang. drac. in pollin. tenuiss. redact. Frigefacta massa fervetur in vase clauso ad usum. Dosis a drachma semis ad unam. || Tiffot has spoken of the employment of acids in the cure of small-pox with so much judgment, that I think it will be of advantage to students to give the substance of his observations here. The vegetable acids were first employed by the Arabians, and have been since employed by their successors to the present day in the cure of small-pox. But no one before Sydenham's time ever employed the vitriolic acid mixed with the drink in the malignant and gangrenous small-pox; at the commencement of the suppuratory stage, however, and during the secondary fever, it seems to be rejected by him as hurtful. But improperly, according to Tiffot; for acids resist putrefaction; diminish the heat, fever, and itching; prevent the colliquative diarrhœa, without producing costiveness; remove the angina, delirium, and phrenitis; check the malignity, and prevent the benign from degenerating into the malignant small-pox; do not suppress the ptyalism, excite the flow of urine,—espe-

cially the nitrous acid, when mixed with the drink in large quantity,—and obviate the metastasis of the pus. They are particularly recommended in the hæmaturia, and black small-pox, as also in alkalescence and warm dissolution of the fluids (*Ep. Var. Arg.* p. 28. to 56.). The common dose of the mineral acid, according to Quarin (*Meth. Med. Febr.* c. viii. p. 96.), is a drachm a-day : but there is sometimes occasion to increase it to half an ounce, or even to six drachms. He adds, that it may be given to infants, if they reject it in their drink, mixed with some syrup, and taken in spoonfuls. But Tissot mentions his having given it still more liberally. For sometimes within the space of four hours he gave three drachms of spirit of vitriol, or sulphur, diluted with a large quantity of drink, to allay the violence of the fever, delirium, and anxiety. At another time he gave a woman two whole ounces of the spirit of sulphur in the space of forty hours. He grants, however, that in consequence of the long and liberal use of acids, towards the end of the disease colic-pains arose, which it is necessary to allay with opium (*l. c.* p. 23. to 25.). But altho' he be a very great friend to acids, he reprobates them in a vapid diathesis of the blood, and laxity of the solids, unless the acids are combined with cordial remedies, as camphor, peruvian bark, virginian snake-root, the simple mixture, or the sulphur auratum antimonii. But Farr (*De Acid. Virib.* p. 101.) differs somewhat from Tissot, as he observes, that acids ought not to be given when the circulation of the blood is too languid, nor when the solids are too rigid, and the fluids too sluggish and dense. In my opinion, however, all acids ought not to be understood here ; for the vegetable ones, especially the nitrous acid, when diluted, prove attenuant and dissolving ; nor is it inconsistent with truth to suppose, that the vitriolic acid also, whilst it diminishes the irritability, and perhaps attenuates and attracts the earthy element and connecting gluten, may occasion laxity of the fibres ; and it is therefore improper to discard it when the solids appear too rigid.

272. I must likewise make some observations concerning the peculiar treatment of the *sanguineous* species, as it is called (197.); but as in it the pustules by no means suppurate, but become livid and somewhat bloody, being universally accompanied with black spots, vibices, and petechiæ, and the blood is very much dissolved, giving rise to various kinds of hemorrhages; it is evident that it is of a highly putrid nature, and requires the most powerful antiseptics, inspissating and styptic remedies, particularly bark, preparations of vitriol, and alum. It is best, therefore, to administer a drachm of bark, or four scruples, every four or six hours, and, in the interval, such a dose of alum as shall appear adapted to the patient's age and constitution; or the serum lactis aluminosum, or the specific of Helvetius, to the extent of a scruple, in conserve of roses, which is most efficacious. Great benefit, also, is derived from the vitriolated tincture of roses, of which five or six spoonfuls taken occasionally will be sufficient for adults; nor is the red French wine without its praise, or any other subacid or austere remedy, the power of which also, in improving the strength, is celebrated. But acids of all kinds, if in any case certainly in this, afford remarkable relief. Spirit of vitriol, therefore, even the very strongest, is said to be preferable to all others, especially when dropped into the drink, and when black or livid spots are interspersed among

the pustules *. Nor must I here omit noticing the antiseptic virtue of camphor, especially when employed in conjunction with the vegetable acids. If delirium or coma come on in this species, Meade affirms, that blisters also may be safely employed †, which will appear surprising to such as with reason suspect the efficacy of cantharides in such a state of dissolution of the blood, and tendency to putrefaction. But sometimes such is the necessity for revulsion, that it requires the attention being wholly turned to it, although epispastics, and cataplasms prepared with mustard-feed, are then to be considered as safer.

* Meade, *De Var.* c. 3. † *Id. ib.*

273. Likewise in the *crystalline* small-pox, and those called *siliquosæ* (183. 189.), which in their progress become flaccid and empty, frequently occasioning sudden death, unless some evacuation comes on; the watery fluid they at first contain is by no means converted into pus. It must therefore be partly dissipated by the perspiration, and partly derived to the urinary passages; which is effected by bland diaphoretics, cordials, and diuretics. Hence the bezoartic powders, powder of crabs claws, contrayerva-root, spiritus Mindereri, confection of kermes, and particularly the peruvian bark, fulfil the first and second indication; but the third is answered chiefly by nitre, from a scruple to half a drachm three or four times a-day.

interposing it among the other remedies already mentioned. Some prefer dissolving the nitre in weak wine, which, towards the end of the disease, they employ somewhat stronger to recruit the strength. Likewise *sp. nitri dulcis*, liquor terræ foliatæ tartari, syrup of marsh-mallows, and other such remedies, prove very incising, attenuant, and diuretic. Upon the fifth or sixth day of the eruption, they order blisters to be applied both to the lowest vertebra of the neck, and to the arms and ankles, to draw the fomes of the disease, by which the fever may be aggravated, or the internal parts affected, to the surface. But if an aberration of the variolous matter takes place, and it does not pass out by any natural or artificial opening, it is almost necessary, at this stage of the complaint also, to have recourse to cathartics. Nor is a different plan of treatment required in the *variolæ verrucosæ* (183.): for the thick matter in them must be digested and gradually evacuated. Hence it is generally necessary to employ alexipharmacs, cordials, sudorifics, diuretics, and epispastics; and, lastly, if these fail, cathartics. But the species of the complaint which is of an *intermediate nature* (202.), and undergoes suppuration difficultly or too slowly, requires the same method of treatment which has already been delivered in a general way. However, were I to treat particularly of every circumstance belonging to the subject, I should

exceed the bounds within which I must confine myself. Leaving the third stage, therefore, I shall hasten to the fourth or last.

* Meade, l. c. c. 3.

THE EXSICCATION.

274. WHEN the suppuration is finished, and the fever, together with the other symptoms, begin to disappear, which happens regularly in the distinct and benign small-pox, the pustules at length become yellow, and are quickly succeeded by dry crusts. There is then scarcely any thing left for the physician to do ; for the disease now terminates, and the former health is restored. Diluents, however, and subacids, ventilating the apartment, remaining out of bed, and the kind of diet already recommended, must by no means be neglected : for attending to these things occasions a more successful exsiccation of the pustules. But if, as sometimes happens, the pustules in any part being full of pus are slow of drying, they ought to be opened, and the fluid expressed, as I have already observed ; while the crusts, if they continue too long, ought to be softened with tepid lotions and fomentations, to promote their separation and falling off. In the milder small-pox, however, at the conclusion of the exsiccation, the more usual practice is to employ some gentle cathartic, or to keep the belly

open with clysters, repeating them every third or fourth day, for three or four times, and still more on account of the secondary fever, during the suppuration, having been either intirely absent, or very mild, it may be concluded with certainty that the belly was not purged. For if any of the varolous matter remains in the system, or the pus has not been intirely discharged from the pustules, it is supposed that it is removed by the purging. Nay, Tissot is of opinion, that we ought not to wait for the completion of the exsiccation, but employ the purging sooner, that is, as soon as the pustules on the face become yellow. For he alledges, that by timely purging we best prevent the bad consequences which are frequently left by the small-pox; and that at this time, while the matter is still fluctuating, one purging is more serviceable than three or four employed later *. Let no one, however, infer from this, that it is in the power of the physician, and the medicines he employs, at pleasure to separate from the sound fluids the remains of the disease, whether they adhere to the surface of the skin, or are diffused throughout the circulating mass, and to direct them otherwise with most advantage. This only seems certain, that the fordes collected during the whole course of the disease in the stomach and intestines, or carried thither gradually, may be advantageously and conveniently drawn off, while, if detained there longer, or flowing back into the blood, they

would occasion new complaints. I do not deny, however, that sometimes the vitiated and noxious fluids are shaken from the most internal parts of the body, and made to pass to the intestines, from which they are ejected, to the great relief of the patient; but who can to a certainty insure himself of such an effect, so as to remove the whole danger by purging, or ascertain that the bad effects which follow ought with justice to be ascribed to omitting the purging? What if, in consequence of the action of a cathartic, the variolous poison being made to retire from the surface, should settle in some internal part, and give rise to a fatal metastasis? It is the business, therefore, of a skilful physician, to conduct himself with such caution in administering cathartics, as to guard against any of the bad consequences that are liable to follow their employment.

* *Epist. Citat.* p. 64.

275. But in the malignant confluent small-pox, as the secondary fever, during the exsiccation, is generally prolonged, attended with very bad symptoms, we must continue the method of treatment already laid down (162. to 168.) at greater length; that is, if the fever is still severe, and the breathing difficult, or any metastasis is threatened, or the quantity of phlegm in the fauces threatens suffocation, while at the same time the belly is bound,—it ought then, not only to be relaxed with a clyster, or whey, or a decoction of tama-

rinds, or cream of tartar, and kept open, but also, if it has not been done sufficiently already, it ought to be pretty briskly purged with syrup of senna, manna, and tartar, or lenitive electuary, or sal polychrest, or an infusion of the leaves of senna, or the like, while at the same time we employ diluents, as the decoction of barley, of the roots of grass, and marsh-mallows, with oxymel, nitre, rob of elder-berries taken copiously, to which may occasionally be added some vitriolic acid *. Nor is it improper, if blood has not been drawn before, or not sufficiently, and the heat is excessive, and the pulse hard, while the strength is not much exhausted, to attempt bleeding, or even to repeat it †. Nay, some eminent physicians, on the twenty-first day, after the exsiccation is completed, when the complaint has been unusually severe ‡, recommend both bleeding and purging. But both in bleeding and purging, we must always keep in view the remarks already made in the preceding paragraphs, exhibiting the arguments employed on both sides of the question, that nothing rash or prejudicial to the patient may be done.

* Meade, l. c. c. 3. and Störck, l. c. p. 275. 276. † Meade, l. c. *ib.* ‡ Sydenh. *Oper.* sect. 2. c. 2. p. 180.

276. But if, in the stage of the suppuration, on account of any severe symptom,—as coma, delirium, convulsions, difficult, short respiration, —revellents, epispastics, and particularly blisters,

have been employed, the ulcers occasioned by them should be long kept open in this stage, that the whole variolous matter may be thus drawn off. This is necessary also, if during the exsiccation the arms or legs have been ulcerated, for similar reasons. I have elsewhere remarked (209.), that a cough supervenes in small-pox, generally as an accessory symptom. When it happens at the beginning of the disease, it is generally catarrhal, or symptomatic of peripneumony. It must be treated just with the remedies calculated for removing catarrh *, or peripneumony (249. 254.). If, during the progress of the complaint, it arises from the pustules besetting the fauces and larynx, it ought to be allayed with diluents and demulcents, and mucous and oily mixtures (254.). But if it comes on towards the end of the disease, in consequence of a metastasis of the variolous matter, we must inquire whether the lungs are affected from a quantity of viscid phlegm being accumulated in them, or are only irritated by a thin, acrid fluid. In the first case, a thick, viscid expectoration comes off, affording remarkable relief to the dyspnoea, oppression and anxiety at the chest. The expectoration must be promoted with aperient, attenuant drink, with the addition of nitre and honey, or some linctus of manna, honey, and lintseed-oil, or oil of almonds. When it is necessary to use more powerfully inciding remedies, and promote

the vomiting, this may be done by oxymel of squills, diaphoretic antimony, kermes mineral, very small doses of the *sulphur auratum antimonii*, inhaling the vapours of vinegar, and the like †. In the other case, barley-water, milk and water, syrup of white poppy, mucilaginous and oily things, and the vapours of warm water, afford relief. Sometimes, both with the view of inciding and causing revulsion, it is proper in either case to employ blisters,—not to mention bleeding,—if symptoms of peripneumony are present. And nearly the same remedies are generally employed in the orthopnœa arising from the above-mentioned causes.

* Vid. vol. i. p. 340. † Störck, l. c. p. 278. Tissot, l. c. p. 25. 37.

277. The drying of the pustules, likewise, has been sometimes succeeded by the salutary ptyalism, which generally supervenes only in the second stage, and terminates in the third, as I have already remarked. It is proper, therefore, to support and promote it with abundance of warm, diluent, sweet drink, and to prevent this critical evacuation from being disturbed by cathartics *, or narcotics, or sudden cold. And it not unfrequently happens, as the suppuration is drawing to a close, or the exsiccation beginning, nay, sometimes after it is done, that tumours, like boils, take place under the skin in various parts, occasioned by the variolous pus not being suffi-

sufficiently discharged from the pustules. These are said to be prevented, as also the secondary small-pox, which frequently succeed to those which have first dried, by timely purging. But when such tumours arise, we must observe whether they are soft, and the fluid contained in them appears thin and fluctuating. For in that case, like abscesses, they must be opened with all dispatch, and digested for a long time, that the whole fluid may be made to pass off in this way. But if they are hard, red, and painful, they must be brought to maturation by means of an emollient and anodyne cataplasm of bread and milk, or ointment of marsh-mallows and butter, or simple diachylon, and at last opened with a lancet, as in the case of those formerly noticed.

* Meade, l. c. c. 3.

278. Sometimes a part of the variolous matter is transferred to the joints, or to the bones themselves, and excites in them the most excruciating pains, without any external swelling or redness being observed. Hence frequently incurable ankylosis, or caries, is produced. When that happens, to prevent such dreadful and obstinate complaints, if the strength remains, and the pulse is hard, resolution ought to be attempted by repeated bleeding, alternated with proper cathartics *. But if the pains in the bones are very obstinate, and threaten to destroy the bones or joints, besides external fomentations, and ano-

dyne and discuffing cataplafms, which are principally indicated, Störck † propofes giving internally, extract of hemlock, wolfsbane, and *flam-mula Jovis*, having already, in an exprefs treatife, “ concerning the powers and ufe of thefe remedies,” delivered the method of employing them. And he advifes the employment of nearly the fame remedies in the malignant and tedious ulcers of the legs and other parts, which sometimes fucceed the fmall-pox, and weaken the body. Others prefer decoctions of farsaparilla, *lignum fanctum*, and bark-root, madder, ethiops mineral, crude antimony, and externally rubbing in mercurial ointment. But the greateft benefit is derived from camphor, both externally and internally, as the celebrated Collin of Vienna has fhewn in his treatife on the ufe of camphor. To which, if the remarkable healing power of the peruvian bark be added, we fhall have greater reason to expect that the ulcers will be more apt to clofe up.

* Störck, l. c. P. I. p. 283. † *Ibid.* p. 286.

279. In the mean time, particularly while thefe tumours are fuppurating, the fever never difappears intirely, being generally aggravated in the afternoon, or evening, and remitting in the morning. For it is fymptomatic, and arifes from the fuppuration; and therefore, when the fuppuration is finifhed, it generally difappears. Nevertheless, during its prefence, it may be in fome

measure mitigated and checked by cooling, nitrous, and slightly antiseptic things, and occasionally by gentle purgatives. But if it assumes the intermitting type, the peruvian bark is generally employed; which if it does not prove serviceable by its febrifuge power, will be found useful on account of its strengthening and antiseptic quality, particularly when the quantity of pus discharged shews that almost all the sound fluids are beginning to be converted into pus, and becoming putrid. Its effect, however, is more certain, and safer, in the true primary intermittents, which I have already said (209.) are sometimes combined with small-pox from the very beginning. At whatever stage of the complaint, therefore, they appear, they ought to be immediately checked by the peruvian bark, that the natural course of the small-pox may not be perverted.

* Meade, l. c. c. iv.

280. It must be observed also, that as soon as the secondary fever departs, and the small-pox dries, the patient frequently appears languid and debilitated. This languor is removed by wine and water, and wine and whey mixed, or some such analeptic. But when the debility continues long after the departure of the disease, and the patients are very slow of recovering their former strength, nothing is found to restore them more quickly and efficaciously than milk, bark, and exercise *. After purging the *primæ viæ*, as

I have already shewn, the body may be nourished with proper diet, gradually increased, until the patient returns to his former manner of living. At length, the pustules having dried, and the scales completely fallen off, the whole body ought to be washed in the warm bath, or the skin ought to be gently bathed with a sponge dipt in warm barley-water and milk, or soap and water, or hydromel, to recall the insensible perspiration, and remove any remains of the variolous matter still adhering to the skin. After cleaning the body in this manner, the cloaths, linens, and bed, ought to be changed, that the seeds of the contagion may be removed from healthy bodies. With respect to the scars, if they are deep seated, they are supposed to be obliterated, or at least diminished, by bathing them with ass-milk, or the water of the flowers of beans, or an emulsion of sweet almonds; or the mildest liniments, as the freshest oil of the yolks of eggs, may be applied to them by means of a hair-brush.

* Tiffot, *Ep. Cit.* p. 48.

281. But among the sequels of the exsiccation, when the disease is not completely resolved, there is sometimes a mild slow fever, like an hectic, which gradually wastes the strength. It at one time arises from the acrid variolous matter being retained, sometimes from a purulent vitiation of the fluids, sometimes from the quantity

of the pus flowing from the skin and the ulcers there, and withdrawing the nutritious fluid, sometimes from a taint of the viscera, particularly phthisis pulmonalis. According to the variety of the causes also, must the cure vary. In general, however, unless the internal parts are affected with such a taint as to defy the power of medicine, it ought to be opposed with the mildest cathartics; such as, pure whey, milk, either alone, or mixed with water, or a decoction of bark,—which even by itself is considered by Morton and others in this case as being of the highest efficacy,—added to an equal, or somewhat greater quantity of milk*; emulsions of the cold seeds; the expressed juice of barley or oats, vegetable diet; but particularly the pure, warm air of the country; gestation; and gentle exercise. Meade†, besides purging, advises bleeding; the utility of which is likewise asserted by Sagar‡. For the fever may sometimes happen to be kept up by a phlogistic diathesis of the blood, which is pretty clearly pointed out by the hard pulse, acrid heat, and such like symptoms.

* Morton, l. c. Tissot, l. c. p. 33. 47.

† L. c. c. iv.

‡ *De Var. Iglav.*

282. I have already mentioned (208.) that the eyes also are affected in various ways by the small-pox. Nor does this happen only during the eruption or suppuration, but likewise after

the complaint is intirely removed. But as I have hitherto said nothing of the treatment of these affections, I shall now proceed to point out the remedies adapted to them at both periods. I shall begin with those affecting the external parts and eye-lids. These occasionally become very much swelled, tense, painful, and close the eyes. The lachrymal fluid under them being infected with the acrid variolous matter, irritates and inflames the *tunica conjunctiva*, in consequence of which the pain is increased, and warm, acrid tears are expressed. When this happens, the eyes ought to be bathed with a very fine sponge or rag, dipped in tepid milk and water. Thus the pain and tension are mitigated, the acrimony allayed, the acrid variolous matter is washed off, the inflammation disscussed, the corroding sensation prevented, and the eyes opened. But if the eyes are bathed in this manner at first, and the bathing repeated every hour, these complaints are frequently prevented, and the palpebræ never become completely closed. Likewise a decoction of barley, or flea-wort seeds, answers this purpose; for it is found to alleviate the pain in a remarkable manner. Others endeavour to preserve the eyes against these accidents, merely by the water of white roses, frequently applied, and warm, or simply cold water, or chalybeate water, with the view of preventing the pustules breaking out on the eye-lids, or the eyes themselves*. But if

they, notwithstanding, do break out there, then the *aqua spermatis ranarum*, or that of mallows, or elder-flowers, may be employed †, or very light milk-poultices may be applied to them ‡. A poultice made of the pulp of sweet apples and milk is found to be most serviceable, especially for alleviating the pain, and allaying the inflammation. Generally, however, it is sufficient merely to foment the eyes with milk and water, to exclude the light, and keep the patient quiet. In the case of a more severe affection, and when a greater degree of inflammation is suspected to be present, diluents must be employed internally, together with antiphlogistic remedies, bleeding, pediluvium, and other revellents.

* Azzoguid. *Let. Cit.* p. xxxii. xxxiii. † *Id. ib.* ‡ Tiffot, *Ep. Cit.* p. 48.

283. The ophthalmia, which sometimes supervenes towards the end of the small-pox *, must be treated with bleeding, and diluent and antiphlogistic remedies, as whey and cathartics. In which case also, blistering the skin with cantharides contributes very much to occasion revulsion, particularly if the complaint be of long standing, or apt to return. But if the violence of these complaints is such as to give rise to abscesses, hypopyum, or the destruction of the eye itself, the treatment of them becomes the province of surgery. The commonest effects, however, left in the eyes

by the small-pox, are specks, leucoma, small ulcers in the cornea, phlycthænæ, epiphora, and chronic ophthalmia, which is very apt to recur upon any slight occasion. Various remedies are proposed by physicians and surgeons in treating each of these affections, the greater part of which, however, are either hurtful or superfluous. The leucoma, specks, ulcers of the cornea, and phlycthænæ have been very frequently observed to disappear merely by the assistance of nature and length of time; while it is found that they are very much exasperated by washes, ophthalmic waters, liniments, perfumes, and particularly the various kinds of powders, generally blown or poured into the eyes. But the greatest advantage ought to be obtained from the manner of living employed, and those things which correct and draw out the acrid and vitiated fluids, and cause their gradual and gentle excretion. The chief of these are the juices of the cold herbs, or their decoctions, mineral waters, the fresh-water bath, and purging at proper intervals. Likewise the whey of goats milk, ass-milk, decoctions of sarsaparilla and bark-root, are of great utility, and their employment must be regulated by the patient's temperament, and habit of body, by the season, and other circumstances. In the case of an obstinate watering of the eyes, and when the ophthalmia returns, and is of long continuance, I have more than once observed the greatest advan-

tage to be derived from a large blister applied between the shoulders, and kept open for a length of time, and afterwards from a cautery in one of the arms; the utility of which, as a preventative, experience has often shewn. Sometimes the eyes continue to be affected with very troublesome pains for a long time, to remove which, and the spots on the cornea, Störck recommends extract of black anemone, with the addition of a very small dose of magnesia alba, given at intervals †. It is to be observed, however, that the eyes are sometimes inflamed and severely affected by this medicine, in consequence of which its employment requires great caution.

* Störck, l. c. P. I. p. 285. † *Ibid. et Formul.* n. 48.
in part, 2.

284. The ears likewise become affected in different ways (208.). The pain and inflammation of them require almost the same remedies which I have recommended in the cure of the eyes (283.). But the abscesses and ulcers ought to be gently wiped, and allowed to continue open a long time, and not to dry, until after having to no purpose employed those remedies, which are apt to correct the bad habit of the whole body, and dyscrasy of the blood. For, on prematurely checking the flow of the pus, metastases generally take place, in consequence of the hurtful matter being transferred to the brain. Enough, then,

of the complaints accompanying or succeeding to the small-pox. It remains for me to take notice of a particular symptom which may supervene in any stage of the complaint, but which occurs more frequently during the eruption or suppuration, I mean the *ischuria*, already mentioned (207.). It is relieved, as Sydenham remarks *, by rising out of bed, and gently walking about the room. When this happens in consequence of a diseased state of the bladder, fomentations applied to the hypogastrium and perinæum, and emollient and relaxing injections, cause a flow of the urine. Meade † is of opinion that the last ought to be employed when there is reason to apprehend the striking in of the pustules from cold being caught. Lastly, if the bladder is swelled and painful, and other remedies have been employed to no purpose, the urine ought to be drawn off with the catheter, particularly when the patient is grown up. Diuretics are inadmissible, unless in the *spurious ischuria*, as it is called, in which the urine is deficient in consequence of the secretion not going on in the kidneys. If the voiding of urine at the same time is attended with *ardor urinæ*, it must be allayed with internal and external relaxing things, and especially with drinking an emulsion of melon-seeds, and sweet almonds, with the addition of syrup of marsh-mallows, or barley-water, or marsh-mallow root, or liquorice.

root, marsh-mallow flowers, verbasum, and the like.

* *Oper. sect. 2. c. 2. p. 179.* † *L. c. c. 4.*

485. It is now time to close my account of the cure of the genuine natural small-pox. I shall probably appear to have been too tedious to such of my readers as have been much versed in medical science, and require rather a synopsis of the chief heads than a more diffuse treatise. But when they consider that these Institutions are designed for the instruction of students alone, who stand in need of the most ample information, they will overlook my prolixity. For, with a view to their improvement, I considered it as necessary to enumerate, not only the remedies generally serviceable at any period of the disease, but also every thing from which any advantage may be derived in the particular species and symptoms of the complaint; in doing which I hope I have done them an acceptable service. I have designedly said nothing of the combination of small-pox with the *petechial* and *miliary eruptions*, which so often takes place (205.). For when these eruptions are secondary, they scarcely require any other method of treatment than that which is adapted to the cure of small-pox: but, when primary, whatever other remedies may be considered as necessary, will be found in the tenth and eleventh chapters, and therefore need not be enumerated in this place. But I shall now pro-

ceed to the *inoculated small-pox*, which the order requires my discussing in the next place.

THE INOCULATED SMALL-POX.

286. IT is necessary at length to treat of the *inoculated* or *artificial* small-pox, which I have already mentioned (166.). The small-pox communicated by the inoculation of the matter are so named. But there are several kinds of inoculation, of which, as an immense multitude of learned writers have treated at great length *, so that almost every person is now acquainted with the various modes of practising it, it will be sufficient here to select and explain the mode which is generally considered as the simplest, most convenient, and safest of all.

* Whoever is desirous of fuller information, may consult the following authors of many others who have written on the subject.

Emanuel Timoni, *Epist. ad Jo. Woodward*, 1713.

Pilarini *Nova et Tuta Variolas Excitandi per Transplantationem Methodus*, Venet. 1715.

Kirkpatrick's *Analysis of Inoculation*, &c. London, 1754.

Tissot, *L'Inoculation Justifiée*, A Lausanne, 1754.

Condamine *Memoria sull' Inoculazione del Vajuolo*, Livorno, 1755. *Second. Mem. del Medesimo*, Livorno, 1759.

Manetti *Della Inoculazione del Vajuolo*, Firenze, 1761.

Reflexions sur le Préjugés qui s'opposent aux Progrès, et à la Perfection de l'Inoculation, par M. Gatti, Médecin. consultant du Roi, et Professeur en Médec. dans l'Université de Pise, A Paris, 1764.

Zulatti *Notizie de gl' Innesti di Vajuolo fatti in Cefalonia*, nel 1764. Vid. *Giornal. Medic.* vol. vi. N. xxxiv. et seq.

Gio. B. Lunadei *Del Metodo d'Innestare il Vajuolo*, in Urbino, 1766.

Nouvelles Reflexions sur la Pratique de l'Inoculation, par M. Gatti, A Paris 1767.

The Present Method of Inoculation for the Small-pox, &c. London, 1768. Vid. *Magazzino Toscana*, T. I. P. I. et seq. ann. 1770. Di Tommaso Dimisdale. *Porta il Juniore Discorso in favore dell' Innesto del Vajuolo*, Milano, 1774.

287. After passing from the hands of the rudest nations and quacks, into those of medical men of character, it became a question, in what manner it might be reduced to the rules of art, the more certainly to insure its beneficial effects. It then occurred to them to be proper to render the persons designed to be inoculated fitter for its reception. Accordingly, if plethora, or a bad state of the fluids, was present, it was judged proper to remove it by employing bleeding, purging, proper diet, and the like. This was called *preparing for inoculation*. But this practice has at length fallen into total disuse. For the best inoculators reason thus: The persons to be inoculated are either in good health, or not. If they are healthy, they do not stand in need of preparation, for they might be so altered by it as to be made to recede from a state of perfect health. If they are unhealthy, they ought to be cured of the disease under which they labour, before being inoculated, and their health restored; for thus they become fit for ino-

culatation. They therefore reject all preparation as superfluous, or hurtful, unless by it we mean the restoration of the health, whenever it has been injured.

288. Therefore the subjects for inoculation ought to be sound and healthy. I call those people healthy who perform the functions of the animal economy with ease and alacrity, and without lassitude; who are of a good habit of body; who breathe gently; whose breath is inodorous, and by no means fetid; who are neither liable to convulsions nor cutaneous diseases; who are sufficiently strong, have a good appetite and digestion, while at the same time the excretions go on properly, and good sleep is enjoyed; who have a soft fine skin, readily healing on being accidentally cut; who have neither a scorbutic, venereal, nor scrofulous taint, nor any other remarkable vitiation of the fluids. Such are the proper subjects for inoculation; though it must be confessed that persons have been sometimes inoculated who were not in perfect health, but valetudinarians and weakly, and who nevertheless were affected with the disease in its mildest form *.

* Störck, *Diatr. de Infit. Var.* Vid. Franc. Xavier de Wasserberg, *Fascic. I.* p. 3. Likewise *Med. Pract.* P. I. p. 295.

289. Neither any age, sex, or time of the year, are exempted from inoculation being performed, neither infants, children, young people, women, nor old people. For in all of them repeated ex-

periments have shewn, that inoculation has been practised with safety and success. But the period of gestation and puberty ought to be avoided. From five to ten or twelve, however, is supposed to be the most proper time of life ; and the spring is preferable to other seasons, and next the beginning of autumn, although the autumn is condemned by many, on account of being infected with severe diseases, diarrhœas, and dysenteries. But it is still more necessary to avoid unhealthy states of the air, during which malignant, exanthematic, or putrid diseases, prevail epidemically ; because there is reason to apprehend that the small-pox may partake of the bad disposition of the epidemic or stationary diseases, or become combined with them. But it is proper, as far as that can be done, to chuse a situation as free as possible from the seeds of the contagion, rather in the country than in town, where the air is temperate and healthy ; the patients should live in a large house, with roomy apartments, and windows looking in all directions, surrounded with pleasant greens and walks, inclosed with high hedges or walls, or covered with shades, where they may range about without injury.

290. But every kind of preparation, at least with respect to diet, does not appear deserving of being wholly condemned. Therefore, ten or twelve days before the inoculation, the diet should

be simple, bland, almost intirely vegetable, and cooling. Rice and barley broth, and water-gruel ; delicate animal food ; herbs and fruit ; fresh eggs, particularly combined with other things, and farinaceous meats, are generally given in such quantity as to satisfy the appetite. Robust patients, full of blood, or those of a warm temperament, ought to abstain from flesh, though the soups made from it, and the other articles of diet already mentioned, may be allowed. Likewise fresh-water fishes, frogs, and delicate pastes, may be substituted in the room of land-animal food. And if the patient prefers milk, and things prepared with it, they may be allowed him. For the drink, may be given pure water, occasionally prepared with lemon or orange juice, and a little sugar. Some physicians, however, are of opinion that the usual manner of living ought not to be changed ; and quote instances of this being done without injury. And I am willing to allow the propriety of this, when the patients usually employ an innocent diet, neither improper in quantity or quality, and do not use too much acrid, heating meat or drink. Nor should I consider it as improper, if the *primæ viæ* abound with fordes, or the presence of worms is suspected, to purge the belly once or twice gently, or to have recourse to some anthelminthic. Otherwise it will be sufficient, if the belly is bound, by means of an injection every other day to open it, and keep it so.

Some likewise, immediately after the inoculation, propose immerſing the whole body once or twice in the tepid bath * ; which I ſhould recommend chiefly when the ſkin, being too dry, as it generally is in adults and active people, requires to be ſoftened and gently relaxed.

* Ludwig, *Inſt. Med. Clin.* P. I c. i. ſubſect. vii. § ccviii.

291. At the concluſion of the period ſet aſide for preparation, the perſon is inoculated. Among the various means employed for effecting it, inoculators give the preference to the matter of the ſmall-pox, and chuſe it when freſh, the more certainly to ſecure its being communicated. For that which is old is incapable of exciting the complaint. They prefer it when newly taken from puſtules that have begun to ſuppurate. For, being thinner, it is much more eaſily inſerted, and imparted to the abſorbents, than when it is more concocted and thicker, in which ſtate it is afforded by the puſtules that have become thoroughly ripe. It is probably alſo milder than that which is riper, what inoculators ſay be true. But they allege that that matter is of a milder nature which is taken from the puſtules of ſuch as have the diſeaſe by inoculation. For a much milder diſeaſe is ſaid to be occaſioned by it, and its mildneſs is ſuppoſed to be proportioned to the greater number of ſucceſſive inoculations through which the ſame matter has been tranſuſed *. But it is proper alſo to chuſe a part for the inoculation ; for although

every part seems calculated for it in the opinion of some, experience has shewn that two parts in particular are to be preferred; one of which is the outside of the hand, between the fore-finger and thumb, as the greater flaccidity of the skin there ought to excite less uneasiness during the inflammation, and, besides, the epidermis there is thicker and firmer, and better calculated for the insertion of the matter, as it can be easily separated and raised from the skin without being ruptured. The other is the upper part of the arm, all of which is considered as calculated for receiving the inoculation. Some chuse that part where the issues are placed; others prefer the anterior or exterior part about half way between the elbow and top of the humerus. But the lower extremities are considered as least fit for the purpose on many accounts chiefly, however, because the pustules upon the legs dry with more difficulty, and ulcers take place there which are very tedious of healing up †, as often happens in the confluent small-pox.

* Gatti, *Nouv. Reflex.* p. 82. I know very well that Störck and others employ every kind of matter indiscriminately, without observing any danger to follow. † Gatti, l. c.

292. The virus is inserted either by means of a needle somewhat flattened at the point, which is the most ancient and convenient method, or by means of a lancet, which is now generally used. But whether the needle or lancet is employed, it is struck into the pustule full of such pus as

have mentioned, so as to be properly tinged with the pus. Thus tinged, it is carried to the chamber where the person to be inoculated is ; for he ought to be far removed from the patient from whom the pus is taken, that he may not be terrified by seeing him, or inhale by the mouth and nostrils the contagious effluvia proceeding from his body. Then the point of the needle or lancet is gently inserted transversely, between the epidermis and cutis vera, for the length of about a line and a half, or two lines. It must then be detained there a little, and moved about, that the pus may be carried off and adhere to the skin. At last, by placing the finger upon the part the epidermis is compressed, while the needle or lancet is retracted, leaving all the matter behind. Nor is there any occasion for wounding the cutis vera, which some recommend, to insure the effect of the inoculation. For the most expert inoculators guard against the slightest effusion of blood. If it be doubted that one inoculation is sufficient to impart the complaint, which it generally is, we may repeat it in the other hand or arm to the number of three times ; that is, twice on the one side, and once on the other ; by which, without doubt, the contagion will be communicated, if the body is prepared for its reception. For it is not safe rashly to multiply the inoculations ; experience having shewn, that such as have received good many wounds or inoculations, have expe-

rienced both a more numerous and severe eruption, than those who are inoculated only in one or two parts. Hence it appears, that the number and severity of the pustules are generally proportioned to the quantity of the matter inserted *. On retracting the needle or lancet, the part ought by no means to be covered with a plaster, or bound with a ligature. For the virus thus applied adheres sufficiently, and to a certainty opens a passage for itself into the veins.

* Gatti, *Nouv. Reflex.* p. 78. 79.

293. The needle or lancet, thus tinged, preserves its power for some days, and likewise the pus expressed from the pustules retains it for a long time, provided it be kept in a glass vial, and the air be carefully excluded. But if enough of recent matter cannot be procured, the dried crusts, reduced to a fine powder, may be substituted instead of it. A cotton or silk thread is put into the powder, and allowed to remain in it a long time, or it is well rubbed with it, that it may attract the power of the contagion. This thread is passed between the scarf-skin and cutis vera for two or three lines by means of a needle. I say *passed through*; for it must not be left there as some propose; because every thing extraneous by its irritation, excites inflammation, and proves injurious. Instead of the thread, a needle or lancet rubbed with the variolous powder may be inserted in the same manner; nor is there any oc

occasion for thrusting the powder along with it between the epidermis and cutis vera *, that it may not occasion troublesome irritation. Such is the method which appears to be most eligible.

* Gatti, l. c. p. 83. 84.

294. The artificial small-pox also have distinct stages. The *first* begins with the insertion of the pus, and extends until a slight degree of inflammation appears where the wound had been inflicted. Nothing remarkable about the wound takes place for one or two days. Nay, its lips seem so united that they leave scarce any discernible vestige. But generally on the third day a slight degree of inflammation, sometimes accompanied with itching, takes place in the part; and hence the beginning of the *second* stage is dated, which lasts about three days before the arrival of the real fever, shewing that the internal parts are at length affected with the contagion. But that inflammation is a kind of variolous eruption, not differing from the general one, about to take place, and observing the same progress as the pustules on the rest of the body. It differs from them, however, in appearing without any fever, or internal affection, being the effect of the contagion, as the affecting only the neighbouring parts. At one time it shews one pustule, in the middle of which a spot appears, like a flea-bite, being the mark left by the wound; at an-

other time it exhibits a congeries of pustules, like a cluster of the confluent small-pox. On the *fourth day* the redness expands into a circle, like a large mark occasioned by a flea-bite, but somewhat raised above the skin. An itching is frequently felt in the part; and an uneasy pain is perceived in the *axilla* and upper part of the arm. The pustules gradually increase, become painful, elevated, tense, and truly inflamed. In the meantime the pain in the *axilla* increases, and extends to the shoulder-blades. Sometimes a similar pain occurs in the groin. At last a heaviness of the head comes on, or a headach, and likewise pain in the loins, sometimes sickness, loss of strength, and sometimes a copious discharge of urine, which symptoms precede the immediate accession of the fever. At times, however, these symptoms are either entirely absent, or are very slight and of short duration, and quickly succeeded by the fever, which affords a certain proof of the action excited over the whole system by the variolous matter.

295. This fever does not come on in all places, and in every subject, at the same time after the inoculation. It generally attacks sooner in the warm, and later in the cold latitudes. In Italy it commonly occurs on the fifth or sixth day. And I find the same thing occurred to the patients inoculated by Störck at Vienna in the spring-time, and towards the beginning of sum-

mer. The fever is accompanied with more intense heat, thirst, nausea, headach, pains of the loins and almost all over the body, languor of the eyes, white tongue, frequent, irregular pulse, disturbed sleep, and the other symptoms which are considered as peculiar to the natural small-pox; but they are generally all much milder, and such as occur in the mildest kind of small-pox. In the mean time the pustules that have arisen in the spot where the matter was inserted, begin to be filled with a fluid, and grow pellucid. The redness around them is diffused more widely, and the skin becomes more tense and painful. On the second and third day of the fever the patients shiver and glow alternately, the fever is aggravated, the strength is more exhausted, they complain loudly of vertigo, headach, pains in the neck, eyes, back, nay, in the limbs; are very thirsty, and emit a foul variolous odour, which is peculiar to this complaint. The pustules in the mean time undergo violent inflammation about the place of insertion, and hasten towards suppuration. But as soon as they break out on the face and the rest of the body, the fever along with all its symptoms abates, or intirely ceases.

296. With this general eruption the *fourth stage* commences. If the fever comes on upon the sixth or seventh day, the eruption will take place on the ninth or tenth. For it generally appears

on the second or third day after the invasion of the fever. It is sometimes, however, put off even to the eleventh day. During the eruption, although the pustules above the place of insertion contain true and ripe pus, they still remain intensely red around. On the second day, however, the patients feel themselves well, the pulse being almost as calm as natural. While the pustules increase in number, the redness of the marks where the insertion was made is diminished, or next day disappears entirely. Within three or four days the eruption is so complete, that on the twelfth, thirteenth, or fourteenth, according as its appearance was earlier or later, the pustules at length begin to suppurate, which is called the *fifth stage*; and on the fifteenth they become quite ripe. Nor during the suppuration does any secondary fever of importance arise, unless we consider in that light some elevation and quickness of the pulse, which take place particularly in the evening, being the effect of the suppuration, accompanied with irregular shiverings, pain of the pustules, and some interruption of the sleep; although these symptoms only occur when the number of the pustules is very great, which seldom happens. On the pustules ripening, the strength, appetite, and natural sleep return. The pustules about the place of inoculation dry, and the crust gradually separates and falls off, leaving a round scab or

red mark. The pustules also, after the suppuration, enter on the *stage of the exsiccation*, which is the last. They dry just in the same manner as in the mild distinct complaint, that is, without being attended with any severe symptom.

297. Such is the most usual course of the artificial small-pox. They are frequently so mild, and the eruption so scanty, that very few pustules break out, and are therefore attended with very slight symptoms, both during their inflammation and suppuration. Nay, not unfrequently the fever excited by the inoculation is succeeded by no pustules; in which case, although a real eruption does not take place, the pustules that arise about the place of insertion are said to be sufficient of themselves for drawing out the whole force of the variolous miasma. It is therefore an undoubted fact, that the variolous fever sometimes occurs unaccompanied with the eruption, and that it alone equally insures the inoculated patient against the small-pox as if he had had a full eruption *. I do not deny, however, that the inoculated small-pox have sometimes become confluent and dangerous; that in other cases they have been combined with some other exanthematic disease †; that in many patients they have left tedious ulcers, erysipelases, and various abscesses; and also that some people who have had the artificial complaint have at length fallen

into the natural one ‡;—but it must be remembered, that this is an accident to which the natural small-pox also are liable.

* Gatti, *Nouv. Reflex.* p. 143. 144. † An instance which very lately occurred, of the artificial small-pox having been combined with measles, and which became completely confluent and dangerous, may be found in vol. lx. of the *Journ. de Médec.* an. 1783. p. 120. ‡ Gatti, l. c. p. 11.

298. But they are generally mild and safe. Their mildness and safety, however, is almost wholly owing, not to medicines, which they do not require, but to the inoculation itself, and the regulation of the diet. The regimen again entirely consists in the observance of a few rules. From the time of inoculation until the arrival of the fever, nothing should be changed, either in the diet already recommended, or in the cloathing. The patient should merely be gradually accustomed to the open air, and frequent walking, together with various amusements, in order that afterwards, when he stands more in need of these auxiliaries, he may the more readily apply to them. I consider it as being useless or superfluous, if not hazardous, on the very first day, as some inoculators recommend, to administer Dimisdale's powder, consisting of calomel, tartar-emetical, and absorbents, which acts both as an emetic and cathartic. For it frequently occasions nausea, vomiting, gripes, and other disorders; or, although it be omitted, provided the other rules in

the regimen are observed, the eruption is generally equally mild. Nor ought any other cathartic to be taken, unless the nausea, vomiting, want of appetite, or other symptoms, point out the presence of fordes in the *primæ viæ*. In which case, if it has not been already done, it will be allowable to administer a cathartic. Otherwise it will be sufficient every other day to open the belly, if it is costive, with an injection. I look upon it as a very proper practice, from the inoculation until a full eruption takes place, to immerse the feet every evening for half an hour in moderately warm water.

299. But on the fever commencing, it then becomes necessary for the patient, even to the very conclusion of the eruption, to breathe free, pure, and cold air, and renewed in such a manner that the same air may not be respired a second time. Moreover, during the day the patient ought to remain out of bed, and, in particular, carefully avoid sleeping. But if, on account of the patient's tender age, as in the case of infants, it is requisite in the day-time also; it ought to be taken in the open, cool air. All kind of melancholy or mental languor ought to be banished by merriment, singing, concerts of music, and other amusements accommodated to the patient's time of life, but particularly walking, so as to enliven the mind, and promote the perspiration, without

agitating the body, or deranging the circulation. But if the patient is so weak as not to be able to stand or walk, he ought to be carried into the open air, and left there, until reviving he begins of his own accord to get upon his legs and move about. For such is the power of the pure, cold, and free air *, that the strength is immediately improved by it, and the anxiety and fever very much allayed. But if that cannot by any means be done, or does not answer our expectations, the patient ought to be carried about in a coach, through pleasant parts of the country and agreeable open plains. If it is rainy and windy, or damp and hazy weather, or if sudden cold prevents his going abroad, he must continue at home, but walk up and down in his chamber, avoiding the vicissitudes of the weather, but not the cautious admission and renewal of the air. In this manner whole days ought to be spent, excepting at meal-times, when the patient may remain at rest. But long sitting likewise ought to be avoided, that the strength may not fall, and the limbs become torpid. Lastly, he ought to go to bed at his usual hour, pretty much fatigued ; and the chamber in which he lies ought to be large and well-aired. With respect to the living, during the whole period of the fever and eruption, the meat, provided it be of the kind already mentioned (290.), may be accommodated to the patient's taste. Nature will best point

out the quantity which ought to be taken ; for if the patient is solicited by a false appetite to eat, he will soon complain of satiety, and leave off. Nature, then, shews how much, and at what times, it should be taken. For the drink, may be given cold water, which may be rendered more agreeable and serviceable with the addition of citron-juice and sugar. Those who are accustomed to breakfast, as children, who cannot bear hunger, may take their usual one ; and the same thing may be said of their afternoon meal.

* No one, probably, sets a higher value on the employment of cold air than the celebrated inoculator Gatti. But lest it be supposed that no bounds ought to be set to its praises, let us hear his own words : “ I only desire,” he observes, “ the inoculated patients to avoid the extremes both of heat and cold, and, as if they enjoyed good health, to chuse such a temperature to breathe in as they find most agreeable.” *Nouv. Reflex.* pp. 112.

300. Though it is proposed by some to continue this regimen only to the end of the eruption *, as if the complaint arising from the various miasma terminated here, and the remaining stages, or those of the suppuration and exsiccation are to be considered apart as the effects of the inflammation of the pustules, which generally depart spontaneously without the physician's aid, —others, however, are of opinion, that both during the suppuration and exsiccation the patients should persist in the same regimen, and, even when a full eruption takes place, recommend to them

remaining constantly in the open, cold air, without paying attention to their complaining of shivering and cold ; for they affirm that they never receive any injury from it. For my own part, I neither consider such a cooling regimen as altogether necessary at that time ; nor, in my opinion, is it proper rashly to expose the body, during the suppuration of the pustules, to the inclemency of the weather, as it is not altogether free of danger. It will be better, if they guard against too sharp, cold air, and remain a short time out of bed, continuing long in their chambers, which ought not to be completely shut up, but freely communicate with the air, and walking about in them as much as the pain of the pustules on the feet and legs will allow. It is to be observed also, that the full pustules, if they do not open of their own accord, may be pricked with a needle, and the pus expressed, by which the pains are relieved, the exsiccation accelerated, and the striking in of the variolous matter prevented. On the exsiccation being finished, practitioners have been in the habit of twice or thrice purging the convalescents at proper intervals ; which cannot be condemned, if it be done mildly, and the medicine accommodated to the patient's age, temperament, and habit of body. When the scales have at length fallen off, the whole body ought to be washed with tepid milk and water, as I have already observed is practised in the natural small-

pox. Some prefer employing the milk expressed from melon-seeds, in which some camphor is dissolved. They gently rub the skin with a sponge dipped in it when warm, and afterwards cause all the moisture to be absorbed, by placing dry linen rags on it. In the mean time, according to the state of his appetite, the patient must gradually return to his former manner of living. But he must have no communication with such as have not had the complaint, for forty days after the inoculation, and until other cloaths have been substituted in place of the infected ones.

* Gatti, l. c. p. 132.

301. But although the mild and regular artificial small-pox terminate favourably, merely by using a proper regimen, if they swerve from their usual mildness, and are accompanied with severe symptoms, which do not yield merely to regimen, and require more powerful aid, we must have recourse to the method of cure already mentioned, as being generally adopted in the natural small-pox. At times the inoculated small-pox are not merely severe and dangerous, but also fatal; although this very seldom happens, compared with what takes place in the natural disease, than which the artificial one is with reason considered as being safer and milder. But the arguments which are commonly employed, to point out the advantage which inoculation has over the spontaneous small-pox, may be reduced

to the following heads: 1. Because it may be instituted in healthy, or properly prepared bodies; 2. because a proper age and season are chosen; 3. because the prevalence of very severe epidemics is avoided; 4. because a very small portion of the matter is employed in inoculation, and only applied to the skin; nor is the poison taken in by the mouth and nostrils, as happens in the natural small-pox, and occasions greater danger; 5. because the contagion thus communicated is found to disorder the animal economy less; 6. because the period of puberty and gestation, parturition, old age, and malignant epidemics, are avoided by inoculation; 7. because the beauty of the face is preserved by it; 8. because such as are afraid of the very worst and most fatal kind of small-pox, as if by hereditary taint, in all probability may secure themselves against that misfortune by inoculation, which generally gives rise to a mild disease, of the distinct kind; which last consideration has appeared of such consequence in our times, that the most powerful princes, whose ancestors have had the natural small-pox in the severest manner, have very successfully secured their children against such danger by means of inoculation.

THE VARIOLOUS FEVER WITHOUT SMALL-POX.

302. IN the same manner as the small-pox occur without the fever (160.), so the *variolous fe-*

ver sometimes occurs without small-pox. This is generally observed to happen when they prevail epidemically. Some, however, call this in question, though I suspect without reason. Ludwig declares *, “that in certain cases the variolous fever comes on without an eruption.” A good many other writers of great respectability adopt his opinion †. But it does not occur so frequently and decidedly to the observation of any one as that of inoculators (297.). For not unfrequently at the usual time after the inoculation a fever comes on, which continues several days, and then goes off without being followed by an eruption of pustules. Who would not call it a variolous fever?

* *Inst. Med. Clin. P. I. c. i. subject. vii. § 176.* — † Azzoguidi, *Let. sopra il Vaj.* Nor does Tissot seem to differ in opinion from them.

303. This fever begins and holds on, attended with nearly the same symptoms which generally precede the eruption of the small-pox; and it is cured in the same manner as that which takes place accompanied with the small-pox. It is also occasionally attended with such a ptyalism as is peculiar to the confluent small-pox *, by which its variolous nature seems to be more clearly pointed out. Its duration is variable; as it sometimes runs a short, at others a longer course. But it is supposed to terminate without the pustules, because the variolous miasma, on account

of being milder and finer, may pass through the cutaneous vessels, in a state of relaxation, without straitening them by its irritation, or obstructing them by its density, and thus fly off. It is likewise probable, that the other fluids, on account of the variolous miasma not having been thoroughly blended with them, have not been sufficiently assimilated to it, and therefore, being in some measure wavering and apt to pass off, and not held fast, that it easily escapes through the cutaneous vessels without remaining any time in them. Sometimes, however, in this fever I have had an opportunity of observing a part of that which ought to have passed off, being deposited somewhere in the spaces of the adipose membrane, give rise to an abscess by which the fever was critically resolved *.

* De Haën, *Div. Febr.* p. 97.

304. Therefore the *variolous fever unaccompanied with small-pox* is recognised in consequence of the preceding contagion, the prevailing epidemic, the usual symptoms of the exanthematic fevers, which are peculiar to small-pox, and, lastly, the complaint's being resolved without any eruption of small-pox taking place. Sydenham * had described a particular fever, to which he has given the name of *variolous*, and particularly a critical ptyalism, by which it was resolved. I doubt much, however, that it is the same as that of which we

are now treating: for, although it accompanied the variolous epidemy of the year 1767, 1768, and 1769, and assumed the disposition of the predominant disease, as almost all diseases do which arise during the prevalence of epidemic ones; yet in consequence of the length of its duration, and the petechial eruption with which it was attended, I consider it as being of a very different nature from that just now described.

* *Oper. sect. iii. c. 3.*

THE SPURIOUS SMALL-POX *.

385. THE *spurious*, or *illegitimate* small-pox, differ greatly both from the natural and artificial complaint, but particularly in slightness and short continuance. They are generally preceded by no fever, or a very slight one, like an ephemera. On the first, or at least the second day, an eruption of pustules takes place, which, though not numerous, are sufficiently conspicuous and prominent, sparse, and distinct. They resemble pustules, which are red about the margin, and transparent in the middle, on account of a vesicle there containing a lymphatic, or mucous fluid; and hence they are likewise named *lymphatic*, or *crystalline*, although they differ greatly from the crystalline species already noticed (183.). They very quickly attain their full size, which frequently equals that of a pea. Within two or three days the vesicle in the middle generally bursts, and the pustules dry, leaving small

scales, which fall off, and in general are succeeded by no cicatrices, or at least only certain marks, which quickly disappear †, and the whole disease generally terminates in three, four, or five days. It seldom continues longer; and if it ever proceeds more slowly, it departs intirely on the seventh day.

* *Synonymys.* The *Variola Lymphatica* of Sauvages, *Nosol.* cl. 3. ord. 1. gen. 2. sp. 1. The *Varicella* of Vogel, *De Cog. et Cur. Morb. &c.* § cxxviii. The *Chicken-pox* of the English. The *Variolæ Lymphaticæ*, sp. 1. of Sagar, cl. x. ord. i. gen. 2. sp. 1. The *Simple Crystalline Small-pox* of Macbride. The *Ravaglione* and *Morbiglione* of the people of Tuscany, commonly called *Vajuolo Salvatico*. The *Schiopetti* in other parts of Italy. Fanton, *Diff. de Antiquit. et Progr. Febr. Miliar.* p. 65. The *Crystalli* of some authors, Fanton, *ib.* p. 65. The *Petite Vérole Volante*, or *Verrete*, or *Verolette*, of the French. The *Esclapete* in Languedoc. † Sagar, cl. x. ord. gen. and sp. already quoted.

306. The disease of itself is quite slight, and almost void of danger *. It sometimes prevails sporadically, sometimes epidemically †. It attacks infants and children almost only. It prevails sometimes before, sometimes after real small-pox; but the having experienced the spurious disease does not exempt one from the genuine complaint, which is liable to occur at any future period. The spurious small-pox require no other method of cure than a gentle diaphoretic medicine. In the winter-time moderate heat of the bed, and warm infusions of teil-flowers, or elder-flowers, are generally sufficient. But if there is any un-

usually severe symptom, some of those remedies may be employed already recommended in the cure of the real small-pox; and at the conclusion of the disease the belly may be gently purged.

* Ludwig, *Inst. Med. Clin.* § 177. † De Haën, *Febr. Div.* 5. 10.

307. The *benign*, or *pointed variolæ verrucosæ*, as they are named by Vogel, are a kind of variety of the present species. These also resemble red pustules, but hard, and very like warts, and rising above the surface, generally disappearing in seven days. On account of the mildness of their disposition, they are named *verrucosæ benignæ*, in order to be distinguished from those elsewhere described (183.). Vogel has another variety of the purious small-pox, which he has named *duræ vales* *. “In this species,” he observes, “after a fever, generally of some days continuance, small tumours are formed, of a dark red colour, hard, approaching to an oval figure, surrounded with a red circle, and somewhat larger than the genuine small-pox. In two or three days they become somewhat ulcerated, and gradually dry, attended with a black colour, and at length become pale and subside, while sometimes new ones in the mean time arise; so that the disease, which generally terminates in eight days, is extended to several weeks, either without any fever,

or attended with a flow gentle one.” Does this variety in fact belong to the spurious species of the complaint?

* L. c.

CHAPTER X.

OF THE PETECHIÆ, OR PETECHIAL DISEASE *.

308. SINCE the beginning of the sixteenth century the petechial disease has been so universally known in Italy †, and the whole of Europe, that almost every body, immediately on hearing the name, understands by it certain small spots, which appear thinly scattered on the surface of the body, generally of a red colour, sometimes of a purple, or livid, or violet, or black, and commonly of a round form, sometimes resembling small points, at others very similar to freckles, or flea-bites, or rather small drops of blood, but flat, and not rising above the surface, nor raising the epidermis; except in a very few cases, in which they have been observed to rise somewhat above the skin ‡. But, according to the variety of their size and shape, they are also named *stigmata*, *puncticula*, and *lenticulæ*. In France, in consequence of the red colour, which they generally shew, the name of *purpura* is commonly given to the complaint. These spots in

Italy, are named *peticulæ*, and *pestichia*, or, corruptly, *petechia*, the origin of the name not being well known ||.

* *Synonyms.* The *Lenticulæ* and *Puncticulæ* of Fracastor, *De morb. Contag.* l. 2. c. 6. The *Peticulæ* and *Pestichia* of P. Sal. Diversus, *De Febr. Pest.* c. xiv. The *Purpura* of the French, and of J. Coyt: Thaer, *De Febr. Purp. Epid.* The *Purpura* of Sagar, *Syst. Morb. Sympt.* cl. x. ord. 1. gen. 4. The *Petechiarum Morbus* of Strach, *De Morb. cum Petech.*

† Fracast. l. c. At that time it was considered in Italy as a new disease brought thither from the eastern parts of the world, and particularly from the island of Cyprus. Some indeed disputed whether it had been known to the ancients or not. The common opinion was, that no traces of the complaint are to be found in their writings; for the eruptions, of which any mention is found to be made by them, seem rather to belong to the miliary pustules, and spots raised above the skin, such as gnats occasion. Be this as it may, a late English writer, I mean Lind, does not doubt that Aetius in malignant fevers observed smooth plain spots, not raised above the skin, like flea-bites. But it is still a matter of doubt whether or not, in that passage, *culicum morsibus* should be substituted in room of *pulicum*. Certainly Petrus A Castro seems to approve of the former reading, Vid. *L. De Febr. malign. punctic.* sect. 1. cap. vi. Likewise, in the version of Jo. Cornar, the words *tribices culicum morsibus similes* occur, Vid. *Aet. tetrab. sec. ferm.* l. c. cxxix. It is to be observed, however, that the *petechia*, before being described by the Italians, had been observed by a celebrated French physician, Jacobus De Partibus, who died in the year 1463, or, according to others, 1465. For in his commentary on Avicenna (Tract 4. c. 2.), he has mentioned the spots, which supervene in acute fevers, like flea-bites. The passage is likewise quoted by Hieron. Mercurialis, *Praelect. Pisan. ad. Hist. Hippocrat.* Hist. 2.

‡ Benign petechiæ of a rosy colour, and somewhat prominent, were observed in an epidemic that prevailed at Trent, an.

1591, by my townsman the very learned Roboret, *De Peticul. Febr. an. 1591. public. vagant. c. xi.*; and also in the petechial fever, which was observed at Vienna, an. 1758, by Hasenörhl, chief physician to the Grand Duke of Tuscany; as also in the year 1771 and 1772, by Sagar, in another epidemy, *Syst. morb. class x. ord. i. Exanth. Contag. gen. iv.* But this is a fact of such very rare occurrence, that were it not asserted by men of such authority, I should be strongly inclined to believe, that these spots were not real petechiæ, but the miliary eruption, or the nettle-rash, or measles, or some other eruption of a very different kind, interspersed among the petechiæ, as these are very often combined with the petechiæ, when prevailing epidemically. It was certainly the miliary eruption which accompanied the petechiæ described by Pet. A. Castro; and so distinct did he reckon the eruption, that he constituted two kinds of it, one of which he proposed naming the *febris pulicaris*, the other the *febris culicaris*. And to pass over the observations of our predecessors, which are universally known, it will be sufficient to make mention of a very recent instance of such a combination, which occurred in the epidemy that prevailed in the year 1783, in the towns of *Belgiogosum*, *Stratella*, and others lying along the Po. For in it the combination of the miliary eruption with petechiæ was a most frequent occurrence.

|| They have probably got the name of *pestichia*, on account of being most frequently observed in the plague, or because they sometimes approach more nearly to a pestilential nature, from their malignity. Some, again, suppose them to be named *peticulæ*, as it were *pediculæ*, on account of in some measure resembling the marks left by the bites of lice (*pediculi.*). But why not derive this word also from *pestis*, since by leaving out the letter *s* *peticulæ* is formed? Thus, probably from *pestichia*, by a slight change, has proceeded the Italian word *petecchie*. For such corruptions are very common among the vulgar.

309. The *petechiæ*, like the other exanthemata, (par. ii.), seem to require being divided into *pri-*

primary and *secondary* *. But I have already made such frequent mention † of the *secondary* ones, both *critical* and *symptomatic* ‡, which sometimes supervene, not only in continued fevers of all kinds, but likewise in intermittents, that they can have no discussion in this place. It therefore remains for me to speak in particular of the *primary* ones, that is, the exanthematic febrile disease; although I am well aware that several late writers, as Cullen ||, Macbride §, and other respectable physicians, exclude them from the exanthematic diseases, and particularly Joubert ¶, who denies altogether that the petechiæ are ever *primary*, but always *secondary*, as being not unfrequently the symptoms of other diseases, and particularly of malignant and epidemic fevers **. I shall shortly point out my reasons for not agreeing in opinion with these authors, that I may not be supposed to have adopted an opposite one rashly, or capriciously.

* V. Vol. i. *De Febr.* Par. 56.

† All petechiæ are divided into *critical* and *symptomatic*. But I find the word *critical* employed here improperly; for I observe that such as adopt this distinction do not by it understand that which belongs to, or proceeds from a disease,—which is its proper acceptation,—but that it is employed just in the same sense as *primary*. But, properly speaking, *critical* and *symptomatic* is something regarding a disease, or proceeding from it, not the disease itself, to which alone the term *primary* applies. I therefore think, that those petechiæ are more properly called *critical*, or *symptomatic*, which are named *secondary*, as belonging to, or preceding any *primary* disease. Hence it

appears that the distinction into *critical* and *symptomatic* applies to the secondary petechiæ only. For that the disease can be both *primary*, and at the same time *symptomatic*, or *critical*, involves a complete contradiction. If any distinction, therefore, applies to the petechiæ, none is better adapted to them than that of the other exanthemata, as small-pox, measles, scarlatina, &c. which are very properly divided into *benign* and *malignant*.

‡ Vol. i. *De Febr.* par. 177. 198. 382. &c. || *Gen. Morb.* ord. iii. § *Theor. & Pract. of Phys.* vol. 2. c. xi. ¶ *Hist. de la Soc. Roy. de Med.* an. 1776. p. 259. Paris, 1779.

** The arguments employed by Pet. J. Bergius (*Act. Acad. Scient. Suecic.* vol. xxviii. p. 326), to prove that the petechiæ are always symptomatic, are these: 1. The petechiæ have a very great resemblance to the red miliary eruption, which is always symptomatic. So therefore are the petechiæ. 2. On the eruption taking place, the fever is not diminished; nay, all the symptoms are aggravated. 3. Petechiæ do not break out in all persons labouring under the same complaint; and in some, although they have broken out, they quickly disappear, without any bad consequence taking place. Some even have a successful recovery before the disappearance of the spots. 4. Cathartics and the cooling regimen are found highly serviceable in this eruption, in consequence of expelling the putrid fluids, and checking putrefaction. Were the disease primary, both remedies would be hurtful; for they would oppose the eruption, or cause its striking in, and thus give rise to fatal metastases. Such are his principal arguments. But I think they may be answered in the following manner: 1. The resemblance between the petechiæ and the red miliary eruption is not so great, since there is no small distinction between them, as will appear evidently to any one who compares their descriptions: nor can the red miliary eruption always be called symptomatic, as is falsely assumed; and therefore no conclusion can be drawn from thence; nay, if any inference could be drawn, it would evidently follow, that the petechiæ, in the same manner as the miliary eruption, are not always in fact

observed to be symptomatic. 2. The fever, after the eruption of the petechiæ, is not diminished; nay, its symptoms are not increased only when the petechiæ are symptomatic, but also when they are primary, and malignant. But it is diminished, along with the other symptoms, at least the chief of them, when, although secondary, they break out critically, or after concoction; or when, if they are primary, they follow the nature of the benign ones. 3. And it does not always happen that the petechiæ do not break out, or disappear, when the disease is truly petechial, without injury, experience having shewn that an imperfect, difficult, and lingering eruption, and much more its sudden retiring, at all times in the primary complaint, but principally in the secondary one, when it is to turn out critical, not only renders the disease more severe, but frequently even occasions death, unless some other evacuation, as a diarrhœa, or copious discharge of urine, or sweat, supply its place, in the same manner as happens when the small-pox become depressed, or disappear. If ever, therefore, an imperfect or defective eruption of the petechiæ, or its striking in, is followed by no injury, it happens only in the symptomatic kind, not in the others. Nor ought it to appear surprising, that the petechiæ, in a state of convalescence, sometimes still remain on the skin, as that circumstance, so far from pointing out their symptomatic nature, rather demonstrates that the petechiæ were either critical, or very mild, in so much that the fever disappeared together with its symptoms before the eruption, as we frequently observe to happen in small-pox, measles, and other eruptions, when of a mild kind. 4. Lastly, with respect to the boasted utility of purging, and the cooling regimen, it ought at first to be limited, as practitioners have frequently found, that cathartics, in certain petechial epidemics, have not only been superfluous, but even highly dangerous; and the same thing applies to the imprudent, rash, or indiscriminate employment of the cooling regimen. Next, if it ever happens, as the author contends, that cathartics are found to prove serviceable in the petechiæ, the opinion of such as acknowledge it to be a primary

complaint is not invalidated in consequence of that, it being well known to all medical men, that the petechiæ, although primary, are sometimes kept up by, or accompanied with dyspepsia, so that the administration of purges becomes then not only necessary, but is even attended with salutary effects. But since the cooling regimen, as in all the other exanthematic diseases, if properly employed, proves very serviceable, it is not surprising that it should not be hurtful in the petechiæ, especially when excessive heat of the blood, or too great tendency to colliquation, or putrefaction, require being checked. But with regard to the secondary and symptomatic petechiæ, as those probably were which he once observed during the prevalence of malignant and putrid gastric fevers, I willingly own, that in these purging and the cooling regimen, so far from proving injurious, are highly serviceable, as they are known to be in other exanthematic diseases, combined with dyspepsy, or having a tendency to putrefaction; but it does not follow from thence, that the petechiæ should be considered *as always symptomatic*.

310. The reasons by which I am led to consider the petechiæ as being incontestibly primary, are the following. And in the first place, it is to be observed, that the petechiæ, when they prevail any where epidemically, are not unfrequently observed alone, unaccompanied with fever, or any other disease on which they can depend; so that many people are observed going about their usual occupations covered with these spots, without experiencing any inconvenience. In support of this, I appeal to the authority of Pet. Sal. Diversus *, Pet. A. Castro †, Joach. Burserus ‡, Jo. Fantonus §, Strack §, Damilani ¶, and Duncan **, and all experienced practitioners who

have observed these spots by themselves. Every body must name them primary. Nor shall I grant that these authors could have been deceived by the likeness of the eruption to petechiæ, while the patients were in fact affected with scorbutic spots; as I myself, whenever I have had an opportunity of seeing them, on the most careful examination have found, that they were real petechiæ, and that the persons affected with them were otherwise perfectly healthy, and free from all suspicion of the presence of scurvy. Nor do these petechiæ occur alone only; but sometimes break out a little before the fever comes on, and are afterwards succeeded by it, which may be likewise observed sometimes in the other primary exanthemata.

* L. c. † *De Febr. Punct.* sect. 3. aph. 32. ‡ *De Feb. Petech.* § *De Antiq. et Prog. Feb. Miliar.* p. 70. § *De Morb. cum Petech.* c. 2. p. 19: where he observes: "I have likewise observed petechiæ, when they prevailed epidemically, unaccompanied with fever, or any other infirmity." ¶ *Nuov. Tratt. sopra le Malatt. delle Migliar. in Piemonte, &c.* p. 131. Mondovi, 1774, 8vo edit. ** *Médec. Casés, with Rem.* Lond. 1778. Hist. vii. and Comment. Lips. vol. 25. P. 2. p. 225. where the author makes mention of a particular benign petechial eruption, which terminated successfully without febrile symptoms. A great many instances of petechiæ, unaccompanied with fever, are collected by Graff. Vid. *Dissert. de Petech. sine Febr.* Göett. 1775. Strack, also, has some histories of the same kind, l. c. ægrot. 40. to 45. Likewise Diemerbroeck gives an account of a boy of six years of age, who laboured under petechiæ without any fever, *De Pest.* l. 4. ægrot. 41. Lastly,

Schlichtor considers these as real petechiæ, *Dissert. de Petech.* p. 22.

311. In the second place, it appears highly deserving of notice, that this disease has a natural tendency to the skin, in the same manner as other truly exanthematic complaints, appearing there sooner or later, and that sometimes nothing can prevent it from proceeding to the surface. For it has been found, that sometimes neither the most cooling regimen, nor bleeding, nor repeated purging, nor the admission of fresh air, nor changing the cloaths, nor mixing ice with the drink, prevent the eruption from taking place *. But this fact holds so uniformly, that scarcely any of those who are affected with the disease, when it prevails epidemically, remain free of the petechial eruption, whatever be the issue, whether the patient recover, or sink under the complaint. And although one or two patients remain free from the petechiæ,—as I do not deny sometimes happens, though very rarely,—we cannot conclude that the petechiæ, which have appeared in others, because they were not common to all, are to be considered as symptomatic: for even in the very few instances in which the petechiæ are absent, the disease is attended with just the same symptoms with which the petechial disease is accompanied, and yields to the same method of cure; and this I find confirmed by the additional testimony of Strack †. For as the *variolous fever*, or the *variolous disease unaccompa-*

nied with *small-pox*, sometimes occurs (302.), I should not consider it as at all absurd to suppose, that the *petechial fever* may in like manner take place without petechiæ ‡.

* Sarcon. *Istor. Rag. de' Mali Osservat. in Napoli nel 1764*, P. 2. § 403. † L. c. p. 29. ‡ For the miasma, the retention of which under the epidermis would have occasioned the appearance of the petechiæ, may be dissipated along with the cutaneous perspiration. Hence it happens, that during the prevalence of the petechial disease, the fever, which gave rise to the appearance of the petechiæ, sometimes, especially when the summer-heat comes on, continues to distress the patient, but is not accompanied with petechiæ, which, however, afterwards appear when the cold of autumn succeeds. The same thing happened in the petechial disease which occurred in the year 1783, as I have learnt from a second letter of Pinaroli, which I have received.

312. In the third place, the fever accompanying the petechiæ, as the experience of almost all physicians, and particularly that of the very accurate Petrus A Castro *, informs us, is generally uncertain, variable, and anomalous; nor is it confined to any particular type, order, or genus: nay, it is sometimes either wanting, or intermits, or seems to be wanting and to intermit, particularly when the disease has attained its height, so that it can by no means be considered as the principal disease; which will appear more clearly when its history is delivered. But that is a mark almost peculiar to the other febrile eruptions, when they are of the nature and hold the rank of a primary disease. In the fourth place, the petechiæ, besides that they

break out in all patients, or at any rate in by far the greatest number, as I have already said, likewise appear sooner in particular instances, generally about the fourth day, sometimes even earlier; but very seldom, if ever at all, delay breaking out beyond the seventh day, unless they be very anomalous, while the secondary and symptomatic ones appear much seldomer, and in fewer patients, nay, very late, generally when the disease is far advanced, and drawing to its close, or when it is about to terminate favourably, unless they be hastened by the improper employment of the heating regimen, or heating remedies.

* *De Febr. Malign. Punct.* sect. 1. aph. 1.

313. Lastly, it is a certain fact that a ready, regular, complete, and generally diffused eruption of the petechiæ, and one of the proper duration, for the most part, when the disease is mild, has a favourable termination; nay, that in consequence of it alone, without any other sensible excretion, the disease is intirely resolved: and, on the other hand, that a difficult, imperfect, irregular, or lingering eruption, or its prematurely disappearing, or not appearing at all, or retiring into the system before the dissipation of the morbid fomes, gives rise to the very worst symptoms, which frequently terminate in actual death: but this can never be affirmed of the symptomatic petechiæ. Add to this, that these petechiæ must go through certain stages, in the same manner as the other exan-

thematic complaints, beyond which, when the disease is simple, pure, and regular, it very rarely is prolonged. All which, if I do not very much mistake, exhibit the marks peculiar to a primary disease so decidedly, that every unbiassed person must perceive the force of this truth. If any one, however, trusting either to the authority of his master, or to a few random observations, still thinks otherwise, in order that he may change his opinion, he ought to witness some petechial epidemy, where he may have an opportunity of attending to the cures, of remarking and considering every particular with care, and examining the patient's skin in every case with the greatest accuracy, and not remain content with the hurried and desultory visiting of one patient after another, but pay the closest attention to his patients during the whole course of the disease, nicely scrutinising all that befalls them, and watching whatever is effected by nature or art, and all accidental occurrences. The ingenious Le Roy did not deny the existence of *primary* petechiæ, but he probably did not consider himself as supported by a sufficient number of facts to remove all kind of doubt in his mind on the subject. But after observing the stationary petechiæ of the year 1764, and remarking all the symptoms which occurred in them, he immediately became more and more confirmed in his opinion, that the distinction between the primary

and symptomatic petechiæ is by no means an ideal one. >

* *Prem. Mém. sur les Fievr. Aigües*, sect. 2. p. 213.

214. But although most physicians had observed those primary petechiæ, they gave them their name from the fever with which they are generally joined, since at one time it put on the appearance of a mild disease, at another that of a malignant and dangerous one, more or less fatal *. Hence they came to be known almost universally by the name of the *true*, or *purple petechial fever* †. In order that they might be properly distinguished from the secondary and symptomatic ones. The primary petechiæ, whether they be conjoined with fever or not, are subdivided into *benign* and *malignant*; *regular* and *anomalous*; *sporadic* and *epidemic*; *spontaneous* and *those communicated by contagion*; into *endemic* in certain countries, and *adventitious*; into *contagious* and not *contagious*, and so forth; for they have been found to appear in all these shapes by careful observers. But as the petechiæ are at one time found to prevail alone and pure, at another time mixed and combined with other diseases, particularly intervening ones, which are not always wanting, as they generally are when the plague itself prevails, and therefore, when they appear, scarcely remain free from the stationary or epidemic petechiæ; another distinction of them into the *simple* and *complicated petechiæ* arises. For they are sometimes combined with other diseases,

even at the beginning, in such a manner that they can by no means be considered as symptoms of them. That is frequently manifest in the small-pox, measles, and miliary eruption, with which the petechiæ are frequently combined, not to mention the plague itself, with which it is occasionally conjoined; although more frequently in the plague the vibices and spots come under the class of ecchymoses and gangrenes, and are essentially different from the petechiæ of which we are here treating, as effects and symptoms differ from a primary and essential disease. Nay, what appears still more surprising is, that it not unfrequently happens that the petechiæ, small-pox, and the miliary eruption, are found combined in the same body, and the symptoms peculiar to each are present, by which no doubt is left that all these diseases have conspired together.

* Le Roy, l. c. p. 212. † *Synonyms.* The *Febris Pulicaris* of Petrus A Castro, l. c. The *Febris Peticularis* of Octav. Roreret, *De Peticul. Febr.* an. 1591, *Public. Vagan.* c. 1. The *Febris Purpurata* of Riverius, c. 1. obs. 22. and Jo. Coyttar, l. c. The *Febris Petechialis Vera* of Hoffman, *Med. Syst.* T. iv. P. I. sect. 1. *De Febr. Epid.* c. xi.: Of Platner, *Art. Med.*: and of others. The *Febris Putrida Maligna Petechialis* of Huxham, *De Febr.* c. viii. The *Febris Petechialis*, or *Peticularis*, or *Puncticularis*, or *Lenticularis*, of some authors, Le Roy, *Me-
ing, &c.* *Prem. Mem.* p. 212. The *Malignant, Putrid, or
Purple, or Petechial* fever of Buchan, *Dom. Med.* The *Pesti-
ntial Fever of Europe* of the same author. The *Febris Exan-
thematica Maligna, Exanthematica Venenosa*, and *Perniciosa*, of
Gianchini, *Lett. Med. Prat.* let. 4. p. 129.

315. It is certainly a very difficult matter to pursue the petechial disease through its different varieties (314.) in such a manner as to exhibit a perfect view of the complaint. Nevertheless, in describing it, it shall be my endeavour to give a brief and methodical account of the principal and more usual symptoms, which either I myself have had an opportunity of remarking, or which have occurred to the observation of other physicians, particularly of our own country, when treating it while it prevailed epidemically in various parts. Certain symptoms generally precede the disease for three, four days, or more; such as, heaviness of the head, or an obtuse pain in it, which is sometimes stationary, at other times wandering; sometimes likewise stretching to the neck, like a rheumatic one; at times more or less affecting the loins and joints, but in an irregular manner; loathing of food, or want of appetite, universal lassitude; unusual torpor; lowness of spirits; want of sleep; restless nights; disturbed sleep; and sometimes an uneasy sensation, such as is felt in bruised limbs, or when they are exhausted with fatigue. In some cases a shivering comes on about the loins, which, however, is but slight, and very quickly ceases, and is unaccompanied with any febrile commotion in the pulse. But in such patients as are oppressed with a colluvies in the *primæ viæ*, there is likewise a bitter taste in the mouth, and the appetite is not only diminished, but com-

pletely destroyed. Sometimes such is the sudden loss of strength, without any evident cause, that the patients can neither stand nor walk, nor sit upright, and have a great disposition to faint. But that happens only in the more severe and malignant cases, and especially when the disease has been communicated by contagion. And almost every body blames some error in the six non-naturals, especially suppreſſe perspiration, and immoderate exercise, as having given rise to their illness.

316. This doubtful state of health is next succeeded by the fever, which generally commences with cold, shivering, or rigor: for it seldom comes on secretly, and all at once. When it begins with shivering, which is often slight, it generally recurs several times in the course of the day, especially during the first days; and whenever the patient moves from place to place, or throws out his arms, he complains of the return, or aggravation, of the horripilation. Nor does this happen during the first days only; but sometimes also, during nearly the whole course of the disease, until it takes a turn, he continues occasionally to be more or less affected with the shivering. But so various is the disposition of the fever, that it can scarce be sufficiently delineated. It frequently puts on the appearance of a mild disease, giving reason to hope that it will shortly terminate. In the epidemy which infested Italy in the year 1505 and 1528,

the complaint commenced its attack so mildly, that, according to Fracastor *, the patients would scarce allow a physician to be called ; nay, several physicians themselves were very much deceived by the appearance of mildness which the disease assumed, expecting a favourable termination, or a critical resolution of it, shortly after to follow. It likewise occasionally assumed a similar appearance when it prevailed at Turin in the year 1720, as appears from Richa's description †. For in each of these epidemics the fever, being in a short time conjoined with the most severe symptoms, threw aside its assumed appearance of mildness. But when the fever appears slight, although the heat is neither found to be great to the touch, nor does the pulse depart much from its natural standard ; yet a certain kind of perturbation, lassitude, and universal sensation, as if the bones were broken, heaviness of the head, dulness of the senses, the patient's lying on his back, and similar symptoms, point out the malignity of the disease, which is rendered still more manifest by the accession of the eruption, and alienation of mind ‡. On the other hand, it is sometimes severe and acute at the very beginning || ; nay, it occasionally attacks the majority of patients with great violence, without any conspicuous and manifest accession of fever, which occurred particularly in the disease which prevailed at Turin, even until the eruption took place § : at length, when it ap-

peared, the nature of the disease became perfectly evident.

* *De Morb. Contag.* l. 2. c. 6. † *Constit. Epid. Taurin.*
ann. 1720. ‡ *Fracastor*, l. c. || *Coyttar*, l. c. c. 18.
lib. i. p. 161. § *Richa*, l. c.

317. The fever in this disease generally observes the type of a continued remittent. But when the patients are affected with frequent shiverings, it resembles the species named *phricodes*, and during the first two or three days is so obscure and variable, that it does not certainly appear when it has an actual accession, and when a remission. Afterwards, however, if it does not assume a more distinct type sooner, it becomes more manifestly remittent, sometimes resembling a simple quotidian, sometimes a double tertian, and sometimes being aggravated only every second day, particularly on the even days, as happens in the *tritæophyæ*, and generally during the paroxysms it excites some shiverings, and during the remission sweating. And there is sometimes present turbid thick urine, so that it may readily be considered as a fever of the intermitting kind, or of the nature of the *sub-intrantes* of Torti. Sometimes it observes the type of a double quotidian, having two paroxysms in the twenty-four hours, one before day-break, and the other in the evening: as I had an opportunity of observing particularly in the epidemic which prevailed at Fayence in the year 1759,

1760, and 1761 †. When it appears in the last manner, it is almost always combined with a true quotidian intermittent, so that it is composed of a continued remittent, and a true or spurious quotidian intermittent, as takes place in the *proportionata*.

* *Saggi di Medicina Pratic. di P. Paolo, Dall' Armi, P. I. nelle giunti*, p. 63. † *Ib.* p. 60. ‡ *Vid.* vol. i. par. dv.

318. Such are its principal changes when it observes the nature of a continued remittent. Not unfrequently, however, it puts on the deceptive appearance of an actual intermittent, particularly when it commences with cold, or shivering; as Pet. A Castro observed to happen in a particular epidemic which prevailed at Verona *, and not a few others after him. But after a few paroxysms it throws aside the assumed appearance of an intermittent fever, and passes into a continued one, on the fifth, seventh, or ninth day at farthest. Richa † has observed it run the course of an intermitting fever even for eleven days. But immediately on passing into the continued form, it shews the badness of its disposition, which is proportioned to the length of time during which it had put on its fallacious appearance ‡. While, however, it resembles an intermitting fever, or *subintrans*, particularly when the paroxysms commence with cold or shivering, and are resolved by sweating, not only young practitioners, but even such as are advanced in life, are led to believe that they can

quickly remove it by means of the bark ; which they notwithstanding attempt in vain ; for even though it does intermit, it does not yield to the power of the bark. But although this gives frequent occasion for committing errors, its true nature is not so much hidden as to baffle all attempts to detect it. Richa observes on the subject : “ It never concealed its nature so effectually as to preclude all suspicion of there being some deception in the case, and that an unlucky change would take place, either on the day of the intermission, or remission. For some complained of severe headach, others of excessive heat, and universal lassitude. Some were thirsty, and remained long awake. Not a few were seized with such profound sleep that they could scarcely be roused ; and I do not remember that any of these last ever recovered †.” To which facts if due attention be paid, and moreover if the petechiæ prevail epidemically, and have been preceded by spontaneous lassitude, together with those symptoms which are the usual forerunners of serious diseases, and particularly if the fever observe the type of a double quotidian, which is otherwise of very rare occurrence, and a complete intermission do not take place ; and if the return of the paroxysms be irregular, or at least not very regular, and the sweats not only succeed the remission, but accompany the whole paroxysm, and do not intirely

terminate after it is finished, while the urine does not appear sufficiently lateritious; it may be known from the beginning that the fever is of a deceitful disposition, and that no reliance is to be placed in the bark.

* L. c. aph. 2. † L. c. ‡ A history of the true petechial fever, which at first resembled a double quotidian resisting the bark, and after the cold, with which its accessions began, and the sweat, with which (as in the genuine intermittents), they ended, were obliterated, at length became a continued fever, may be found in a small work of Jo. Vastapani, a distinguished physician at Turin, entitled, *De China China in Synochis Animadversiones*, p. 86. hist. 2. In the same author (p. 89. hist. 3.) likewise may be found an instance of the anomalous petechial fever, which at first was an intermitting tertian, and appeared to yield to the bark; but which shortly after returned in the continued form, without being preceded by any cold or shivering, and was at length accompanied with an eruption of petechiæ. It is to be remarked, however, that both these patients died in the hospital while the petechial disease prevailed epidemically. But the other histories to be found in the same work seem to afford no small grounds for supposing that the hospital-fever, which is generally petechial, might have supervened on the intermitting fevers, if they really were so before, from the patients remaining in the hospital, which is highly probable, as the fevers, which had an intermission, yielded to the peruvian bark: for those which shew a fallacious intermission, and really do not depend on the fomes of intermitting fevers, resist the power of the bark, as in fact the petechial fever does, which at first, as I have said, assumes the appearance of an intermitting fever. For nature then seems, by repeated, but ineffectual efforts, which correspond with the number of febrile accessions, to attempt the separation and expulsion of the petechial miasma, by which it is excited to the febrile motion: and I think it

probable, according as the irritability is more frequently or seldom affected by it, that these motions are more frequently or seldom excited, until, on the poison being completely evolved, the irregular and imperfect efforts cease, and a continued fever arising, makes the exanthematic disease manifest. See also another letter of Pinaroli's, &c. || L. c. § 21.

319. But the type of most frequent occurrence is that of the remitting quotidian. The fever is generally aggravated in the afternoon with shivering, sometimes without it. The shivering is succeeded by heat, which often occasions uneasiness to the patients, but is generally mild to the touch, and continues till morning, when it remits, and an universal sweat comes on, attended with relief to the symptoms. This happened very frequently, especially in the epidemic petechiæ, which my intimate friend and former pupil, Pinaroli, observed in the year 1783 prevailing at Pistoia *. In some patients, however, there are almost constant sweats, both at the beginning of the fits, and during their increase and remission, flowing profusely, warm, and universally diffused, proving of no service, rather debilitating, as in the *clodes* and colliquative fever. This happens in particular when the miliary poison also is combined with the petechial disease. But then the sweats, after a few days are past, are gradually diminished, and frequently intirely disappear. In the town of Belgioiosum, when the petechiæ were lately

prevailing epidemically there, these sweats were observed to continue sometimes during the whole course of the disease, sometimes were present at the beginning only, rarely towards the end; and although they are generally at that time attended with advantage, they are said to have been almost useless in that epidemic †. It is to be observed, moreover, that according to the season of the year, and the vicissitudes of the weather, as well as the diversity of temperaments, it assumes different appearances at different times. In the winter-time, for example, or when sudden changes of the weather, from hot to cold, take place, or during cold moist weather, it assumes the appearance of rheumatism, pleurisy, catarrh, or a running at the nose, so that it may be taken by unskilful people for an inflammatory, catarrhal, or rheumatic fever. In the summer-time, and in choleric temperaments, it frequently proceeds under the appearance of a bilious, ardent, colliquative, or putrid fever. Lastly, according as it is conjoined with dyspepsy, or worms, it frequently resembles the species called *gastrica* and *verminosa*, and is generally considered as such.

* Targioni, *Racolt. d' Opusculi medico-practic.* vol. viii. *Lettere intorno L'epidemia del* 1783, p. 260. † Trollius, *ibid.*

320. Whenever the fever comes on, all the symp-

ptoms which had preceded it (350.) are aggravated, and some other ones, which more strictly belong to the complaint, are added. The appetite, which before was only impaired, now leaves the patient altogether; the præcordia are oppressed with a heavy weight, and deep sighing occurs. Greater lassitude and loss of strength take place; the limbs become more torpid; a more acute pain is felt in the back and joints; and it is sometimes so great, that the patient cannot remain long at rest, but shifts about from place to place. There is generally a constant watching; and if sleep ever steals on the patient, it is of very short continuance, disturbed with alarming dreams, and not refreshing. In some patients, even at the beginning, coma comes on, and continues during almost the whole course of the disease. In other cases, watching and deep sleep alternate with one another. But the head, particularly the fore-head and sinciput, is affected with more acute and distressing pain and heat, or at least there is a great heaviness in it. In these cases, in which the headach and heat are greater, they are conjoined with a throbbing sensation, and more violent beating of the carotid and temporal arteries, than what is felt at the wrists. But in other patients, although the headach be very severe, the temporal and carotid arteries beat in the same manner as at the wrist, *i. e.* the pulsation is small, weak, and not very frequent, which it was in the

epidemy which prevailed at the town of Belgiojofum, as we are informed by the learned Trol-lius *. In other cafes, however, the head is affected only with vague and flying pungent pains; but in whatever manner it is affected, it is generally connected with a painful tenfion of the mufcles of the neck. In all the patients whom Cambieri attended laft year, the headach was very acute and conftant †. To the headach is added tinnitus aurium, and fome degree of ftupefaction. The face in moft instances is fwelled, full, and very red; and the rednefs, unlefs it was prefent at the beginning, at leaft fupervenes in the progrefs of the complaint, and particularly after the eruption of the petechiæ, and continues until the difeafe takes a turn, having the appearance of an eryfipelatous one. But it eafily paffes into a lead, or black colour, when the complaint is getting worfe. The eyes alfo are blood-shot, hot, painful at the bottom, and impatient of light. In many cafes there is intense thirft, although the tongue appears moift and red; in others there is none, even when the tongue is parched, rough, and covered with aphthæ, which was univerfally obferved to take place in the petechial epidemy which occurred lately ‡. The heat is generally uneafy internally, and mild externally; in fome cafes it is even acrid and pungent to the touch ||, particularly during the increafe of the paroxyfms, or when they

are unusually severe. Sometimes, however, the skin externally appears so temperate as to feel cool to the touch. Likewise slight delirium is present, particularly at night, when the violence of the fever is greater. Frequently the crink is rejected by the patients, because the unfitness of the weight in the epigastric region is increased by it. The respiration is generally regular; sometimes it is frequent, laborious, and interrupted with sighs, but not warm, as it is in peripneumony. Sometimes it is accompanied with a pain of the side, which is always attended with a cough and spitting of blood; but frequently proceeds from the spasms, and is unconnected with inflammation. It, therefore, either soon departs spontaneously, or is removed by a single bleeding. This was not an unfrequent symptom at Frascarolum, as I have learned from a letter of my former pupil, the ingenious Maurus Angiolini §. Dyspepsy and worms are frequently conjoined with the petechial disease; when that happens, the tongue is covered with a white or yellow mucus; a bitter taste of the mouth, nausea, vomiting of bile, pain of the epigastrium, sometimes hiccup, constant flatus, and frequent borborygmi, distress the patients. The same symptoms were experienced last year at Pistoia, while the most intense thirst, accompanied with a mucous covering of the mouth and fauces, sometimes white,

sometimes yellow, and a dreadful headach, were present ¶.

* *Lettere intorno l'Epidemia del 1783.* Vid. *Raccolta d'Opuscul. Medico-Pratici*, vol. viii. p. 240. † *Ibid.* p. 284.

‡ Trollius, *ib.* p. 223. || Carol. Pinarolius, *ib.* p. 261.

§ *ib.* p. 290. ¶ Pinarolius, *ib.* p. 260.

321. The pulse is very variable. On the whole, it is small, weak, low, soft, irregular, and not quick, and continues so during the whole course of the disease. In some patients it is raised and full during the increase of the paroxysm; in others, during its increase, and at its height, it becomes small, but obscure and low. At the beginning of every accession it is depressed and quick, but at its increase it is generally somewhat more raised and stronger, but without that force and hardness which is commonly discoverable in inflammatory diseases. Sometimes during the whole course of the disease it is strong, great, frequent, and hard. That happens particularly in certain seasons, in sanguine temperaments, and robust habits, whether it depends upon an inflammatory diathesis, or some acrid principle, by which the vital powers are stimulated. Sometimes the pulse is slow only at the beginning, but after the first days, or on bleeding being employed, it becomes languid, small, low, tremulous, and irregular; nor does it rise higher, or become stronger, until the disease is approaching to its declension. The belly is generally bound,

sometimes it becomes loose, and thin, acrid, fetid stools come off, sometimes of a green colour, sometimes reddish, or yellow, or black, and a great number of lumbrici are frequently passed along with them, which happens principally when the disease is accompanied with, or kept up by, a colluvies in the *primæ viæ*. I have sometimes seen stools of a cineritious kind, sometimes bilious, or serous, and fetid, attended with frequent and uneasy desire to go to stool, together with borborygmi. In some cases the belly remains regular, without receding from its natural state. In others, such is the propensity to colliquation, that the mildest medicine causes a most severe looseness, from which the patient receives much injury. The blood which is let at first is generally of a natural colour and consistence; sometimes it is red, and without serum; sometimes it is covered with a yellow and mucous pellicle, while the crassamentum is lax, and scarcely coheres, and the serous part yellowish or green; frequently, especially in the pernicious kind of the complaint, it is black, acrid, and has a strong tendency to colliquation; when drawn a second time, it is thin and dissolved, floating in a great quantity of dark serum, scarcely concreting, and quickly becomes corrupted and colliquated. In the epidemic which prevailed at Modena in the years 1692, 1693, and 1694, both that which was taken by the lancet, and that which

was brought away by cupping-glasses, or leeches, or which flowed spontaneously from the nose in general appeared of a good kind, but of a very bright red. Nor did the blood drawn from any patient, of whatever temperament or habit of body he was, shew the inflammatory gluten, and pleuritic coat *. Richa observed the same thing in the disease which prevailed at Turin, for the blood in all the patients was very prone to colliquation and putrefaction †. Instances, however, are not wanting of truly inflammatory blood having been discovered, not only at the beginning but also in the course of the complaint, even until the twelfth day, and upwards ‡; although, when it has attained its height, and is farther advanced, that which at first appeared tenacious and firmly cohering, becomes very apt to colliquescence. Nor is it an unfrequent occurrence for the breath to become fetid, and the sweat, perspiration, and the other excretions, to exhale a putrid smell. On the other hand, sometimes the blood which is first drawn appears not only red, but also dissolved, but at the second or third bleeding it is frequently found to exhibit a firmer buffy coat ||.

* Ramazzini, *Dissert. de Const. an.* 1692, 1693, & 1694.
 † L. c. ‡ Dall' Arm. *Sagg. di Medic. Prat.* P. I. nella giunta *Const. Epid. del 1750*, c. 60. p. 71. Hasenöhrl, *Hist. Feb. Petech. an.* 1757, 1758, & 1759. In *Wasserbergii Fascic. Prim. Oper. Minor. Medic. et Dissert.* p. 277. De Haën, *Rat. Med.* part 4. c. 6. || Hasenöhrl, *ibid.*

322. Such in general is the first stage, which continues with all its symptoms until the eruption of the petechiæ takes place, with which the other begins. But on the preceding day, or night, an aggravation of all the symptoms generally takes place, particularly the anxiety, restlessness, and dyspnœa, and the pulse sometimes becomes somewhat hard and contracted, and, if they are not already present, tremors of the hands, starting of tendons, delirium, and the like, supervene. Sometimes hiccup, or vomiting, precedes *. Next the petechiæ break out, that is, between the fourth and seventh day, which is the most usual period †. They have sometimes, however, been observed to break out much sooner, either before the accession of the fever itself, which I have already remarked, or on the first or second day after its invasion; on the other hand, it happens at times much later, namely, on the ninth, eleventh, or fourteenth day; but that is the case only when the complaint is difficult, long protracted, and anomalous. They generally appear on the neck, breast, back, arms, and legs, namely, in those parts which are nearer the heart, or through which the principal vessels pass. But when the eruption proceeds properly, it attacks every part in succession, to the very soles of the feet, the petechiæ which broke out first gradually disappearing, and being in the mean time succeeded by others in parts of the body till then not affected

by them †; nor do they always leave the face quite free. Pinaroli of late only twice observed them break out in his patients on the nates and legs ||. We are informed by Sagar, that in puerperal women, the thighs, nates, inguina, and abdomen, and next the breast and arms, are affected with them, the order being almost the reverse of that which commonly takes place §. They sometimes lurk under the epidermis, scarcely perceptible, and are only seen through it on attentive examination; whence I imagine it frequently happens, that some have hastily concluded that they were absent, when they were actually present. Nay, they sometimes do not appear, unless cupping-glasses be applied, by which they are called out. For they frequently appear only where the skin, in consequence of the application of cupping-glasses, has become swelled, and is rendered finer. Lastly, they occasionally at one time appear, at another disappear; thus repeatedly coming and going, which is generally a bad prognostic mark.

* Störck, *Ann. Med.* 1. *mens.* Sept. 1758, p. 29. et Dec. p. 42.
 † All those who have described the epidemic petechiæ unanimously agree with me. But in particular may be consulted the most similar descriptions, as being taken from nature; mean those of Fracastor, l. c.; of Pet. A. Castro, l. c.; of Roboret, l. c.; of Ramazzini, l. c.; of Richa, l. c.; of Trogher, Dall'Arm. *Sagg. de Med. Prat.* P. I. p. 20. & 28.; of an anonymous writer, who describes the petechiæ of the year 1764. *ib.* p. 15.; and of Tozzetti, *Relaz. delle Feb. ec. del.* 1767, p. 89. and, to pass over a great list of others, of Trollius, Pinaroli

Cambieri, Angiolini, Pizzorni, the latest of our countrymen who have described them ; Targioni, *Rac. d' Opusc. Med. Prat.* vol. viii. ; to which may be added, to supersede many others, the descriptions left by Hasenöhrl, *Hist. Med. Febr. Petech.* and Störck, *Ann. Med.* 1. & 2. ‡ Ramazzini, l. c. § 19. and Richa, l. c. § 12. || L. c. p. 261. § L. c. cl. x. ord. 1. gen. 4. sp. 4.

323. But as the petechiæ vary in size, sometimes resembling small points, sometimes flea-bites, sometimes lentils, sometimes appearing as large spots ; they also differ much in colour. But they are generally of a red or scarlet colour, sometimes of a violet, or they are livid, or yellow, or brown, or pale, and sometimes, though very seldom, perfectly black.

I have already mentioned that the petechiæ are often like flea-bites, from which, however, they are easily distinguished, because they have not the mark of the wound or puncture in the centre, which is indelible, although it is compressed or rubbed, while the rest of the spot left by the flea-bite disappears, or becomes white, by pressure. In which respect they are sufficiently distinguished from the petechiæ ; for the latter remain unchanged, either by pressure, or by any other means. But if it appears still doubtful whether the spots be petechiæ or flea-bites, some advise them to be rubbed with the flower of beans, mixed with vinegar, for they say, that in this way the flea-bites are immediately made to disappear. But when the eruption of the petechiæ

is so great, that almost the whole skin appears covered with them, frequently some much smaller ones are interspersed among them, which in some measure resemble the pricks of a needle. They are generally distinct; sometimes, however, they run together, and form large spots. If they make a perfect circle, they are named *circumscribed*; if, on the other hand, they spread out, they are called *diffuse*.

324. Lastly, the petechiæ differ from the other exanthematic spots, especially those which occur in the miliary eruption, in the nettle-rash, and measles, because they neither rise above the surface, nor render the skin rough, nor are they attended with itching pain, or ulceration, nor do they fall off in scales, but are gradually resolved. On which account I can by no means agree with Petrus A Castro, who makes no distinction between the petechial spots, or, as he calls them, the *maculæ pulicares*, and *papulæ culicares*, or those resembling the bites of gnats*; for in those last there is both a certain elevation, which in Italy is commonly called *tacche*; and certain vesicles, or small spots, both red and white, which are now called miliary, are not only discernible by the eye, but may be felt. Le Roy also observes †, that there is some distinction between the primary and secondary petechiæ, which consists in the difference of their colour; namely, that the former are of a palish red and rosy co-

lour, and in general break out in great numbers, principally on the loins and legs ; that the latter, on the contrary, are generally of a purple colour, like deep red wine, and are sometimes also brown, or black, and fewer in number. But we must also remember that the primary ones break out soon, and when they are epidemic, appear not only in all affected with the same disease, but are likewise very frequently combined with other diseases, called *intercurrent* ones ; for these last are not always wanting, as some improperly contend : while, on the other hand, the secondary ones break out later, and generally about the height, or towards the end of the disease, and not in all patients, but only in those whose blood is so vitiated as to become almost putrid, and occasion gangrenes here and there on the skin ; or being thrown into violent commotion by a heating regimen and medicines, is effused into the spaces of the skin, but not by the wisdom of nature endeavouring to free herself from the noxious miasma. Hence I would say, that the primary differ from the secondary petechiæ, because the former arise from a peculiar and poisonous miasma, and the latter from the crisis of the blood being deranged by the violence of the disease, or from its increased motion, or, lastly, from a heating regimen having been employed. But concerning the seat of the pete-

chiæ, I can by no means agree with Diemberbroeck †, who appeals to anatomy, nor the other great men who adopt his opinion, alleging that it is situate in the internal parts, as the fat, muscle, and periosteum, as if the petechiæ formed a cone whose base was situate at the bones, while its apex terminated at the skin. I grant that this may perhaps be affirmed of the vibices and other gangrenous spots, which are usually observed in such as have died of the plague; but it cannot be said of the petechial disease, in which the petechiæ, unless they be combined with internal gangrene, never descend beneath the skin §. For whatever gives rise to them, is contained in the very minute and distinct cells lying under the epidermis.

* L. c. sect. 1. aph. vii. † L. c. ‡ *De Peste*, l. iv. *Hist.* 32. § They seem to have been gangrenous spots and vibices, which Stoll tells us, on being opened with a lancet, poured out their extravated fluid, or which had penetrated to the whole surface of the skin, or to the fat, nay, to the very muscles, like the cone of Diemberbroeck; *Rat. Medend.* P. 1. sect. cadav. 8. p. 199. 200. It must not be denied, however, that likewise the internal viscera have sometimes been found covered with petechial spots, as appears from the observations of anatomists; but in that case they have no communication with the external ones.

325. After the eruption of the petechiæ, if they are benign (314.), the fever somewhat abates; the anxiety, and difficulty, or irregularity, of the breathing ceases; the hiccup and desire to vomit,

if they are present, not proceeding from a gastric colluvies, but from mere irritation of the nerves, are allayed; the pulse rises and becomes stronger; and the other symptoms are mitigated. At least the pains of the joints and back are so much allayed, that the patients complain less, and appear almost free of them *. Fracastor, in the year 1528, observed that a copious eruption proved salutary; and, on the other hand, that a sparse one, or one which, after breaking out, lurked in the system, proved the reverse †. Ramazzini, in the dissertation already quoted, mentions that the eruption was attended with relief to all the symptoms, when it appeared gradually over the body ‡. In the disease, as it prevailed at Fayence in the years 1759 and 1760, when the petechial spots broke out in great numbers, and were broad, of a deep red colour, and universally diffused they afforded the greatest relief ||. Störck also, when he observed a scanty eruption of the petechiæ take place on the fourth day, first on the neck, breast, and pit of the stomach, and next, after being preceded with new anxiety, extend in great numbers all over the body, asserts that the severe symptoms “almost always” disappeared, or at least became much less dangerous §. The same experienced practitioner in another place mentions, while a few spots appeared on the third day, but a still greater number on the fourth, attended with relief, and others again broke out on the seventh, that

the patients received the greatest advantage from them ¶; and again, that when a few spots broke out on the sixth day, and more on the seventh, a favourable crisis happened on the eleventh **. Hasenöhrl makes similar observations on the benign petechiæ, as will be shewn in its proper place ††. It sometimes happens that for a few days after the eruption all the symptoms seem relieved, but that the fever is suddenly, as it were, again aggravated; the anxiety at the breast returns, the mind becomes deranged, and the sleep is banished; all of which symptoms at last are relieved again by the miliary eruption breaking out on the ninth, eleventh, fourteenth, or seventeenth day, and the disease is frequently resolved by that excretion. This lately happened in not a few instances at Belgiojoso and Stratella ‡‡. The hiccup which remained obstinately for a fortnight after the eruption, Störck mentions to have been removed by a very copious miliary eruption at length taking place |||. Sometimes, likewise, although some symptoms are relieved on the appearance of the petechiæ, the pulse does not rise, but remains, as formerly, low, weak, and small, the starting of the tendons is increased, the delirium after the seventh day becomes more manifest and violent, or coma is substituted in its place; from which symptoms, as Trollius properly remarks, arises an intermediate kind of complaint, between the mild and malignant, of very doubtful issue §§.

* Trollius, l. c. † *De Morb. Contag.* l. 2. c. 7. ‡ L. c.
 || Dall' Armi, *Sagg. di Med. Prat.* l. c. § *Ann. Med.* i.
mens. Aug. 1758. ¶ *Ann. Med.* i. *mens. Mart.* 1759. p. 63.
ed. Amstelod. ** *Ibid.* †† L. c. c. 2. ‡‡ Trollius,
 l. c. and Selicorn, *ib.* ||| L. c. *mens. Sept.* 1758. p. 29.
 §§ L. c.

326. But if the petechiæ are of the kind which I have named *malignant* (314.), on the eruption taking place, so far from its affording relief, as in the malignant small-pox, all the symptoms are aggravated except the respiration, which, if the disease is not very fatal, generally becomes freer and more equable than before. But the fever is increased; the pulse becomes more and more depressed, irregular, sometimes intermits, sometimes is slower than usual; the hands tremble, frequent twitching of the muscles and subsultus tendinum come on; there is an incipient delirium, or, if it is already present, it becomes more manifest and furious; the eyes are red, and sometimes pour out tears; the throat is sore, and sometimes suffused with an erysipelatous redness, or is sometimes affected with real angina, rendering the deglutition and respiration difficult; the tongue, which was before moist, soft, and red, immediately, or in a short time, becomes white or yellow, next black and dry,—if it is not so already,—it grows rough and cracked, and is frequently covered with aphthæ, which affect likewise the lips; the breath has a putrid smell; the teeth, particularly, and the lips, are co-

vered with a filthy matter, which is sometimes black; the delirium is accompanied with coma, which at one time is short and transitory, and succeeded by watching, phrenitis, and convulsion; at another time is permanent, and attended with stupor, and total insensibility of the state in which they are. But, as Fracastor has already remarked *, it is almost an uniform symptom of malignity when the patients remain on their back, on account of extreme debility †, anxious and dejected, and in full expectation of their latter end; or too confident, and thinking themselves in good health. But it is a much worse sign, if, as Ramazzini observed in the disease at Modena ‡, they immediately disappear again on breaking out; for the strength was then completely exhausted, the pulse, as in asphyxia, was intirely wanting, the whole body was cold, the secretion of urine was interrupted; and these symptoms were soon followed by death.

* L. c. † Coyttar observes, that some patients, even when completely covered over with petechiæ, walk erect; that others can neither stand nor walk, and yet do not remain quiet in bed, but are constantly tossing themselves about; and, if they remain in bed, burn with much greater heat. Hence they think they suffer less when sitting in a chair, or walking about. ‡ *Differt. Cit.*

327. To these symptoms are gradually super-added, deafness, and sometimes likewise a cough, at one time dry, at another moist, and next in

some cases the breast is oppressed with flow, great, or irregular respiration; or that which is frequent, short, and accompanied with sighing, which is a highly dangerous symptom. I have sometimes, however, observed the breast become oppressed, by which the head is suddenly relieved, and, on the other hand, the oppression of the breast ceasing, succeeded by swelling and tension of the abdomen *, sometimes painful to the touch, at other times unattended with pain; in such a manner that the force of the disease seemed to be transferred from the upper parts of the belly to the lower. I find a similar observation in Sarcon, speaking of the epidemy which prevailed in the year 1764 at Naples. Last year this tympanitic swelling of the belly occurred in almost every case in which the disease had attained its height; and because the petechiæ were commonly conjoined with depravation of the chyle in the *primæ viæ*, it was generally supposed to arise from the retention of putrid fordes. But the same symptoms likewise supervened in those patients whose belly had been several times purged, or in whom it was sufficiently open of its own accord, while a copious discharge of urine took place †. In that case, did the air, which was retained in the intestines, in consequence of the spasms, and had become rarefied, occasion the swelling? Generally, however, the secretion of urine was diminished at the time the belly began to

grow tense †. In all the patients a great quantity of air filled the intestines; which was occasioned sometimes by the bound belly, or by the congestion and putrefaction of the fæces, as may be learnt from the observations of Frambaglia ‖. In the town of Belgioiosum, this swelling did not appear until the heat of the month of May had relaxed the solids, and predisposed the fluids to putrefaction. I have already observed, that sometimes there is no thirst present, even when the fauces and mouth are parched (320.), which must certainly be ascribed to impaired sensibility. In this stage, however, although the thirst is very great, accompanied with dryness and roughness of the tongue, the patients frequently reject all drink, because the stomach is very much deranged by it; and if they are in some degree impelled to drink either by force or persuasion, they immediately throw it up. Last year, wherever the complaint prevailed §, it was generally observed to occur, but much more manifestly and usually in all the patients who laboured under the complaint at Fayence in the years 1759 and 1760, in so much that one would have pronounced them to have been affected with hydrophobia ¶. Such was the tendency of the stomach to spasm, that they fell into convulsions on touching any thing liquid, and every thing they drank was immediately rejected.

* Dall' Armi, *Sagg. di Med. Prat.* l. c. † Trollius, l. c.

‡ *Id. ib.* || Targioni, *Raccolt. d'Opusc. Med. Prat.* T. viii.
 § *Ibid.* ¶ It is a well-ascertained fact, that hydrophobia does not always arise from the poisonous bite of a rabid animal. An instance of hydrophobia succeeding to inflammation of the stomach, and being cured in consequence of repeated bleedings, is mentioned in the Transactions of the Royal Society of Edinburgh, vol. i. art. 29. Two histories of spontaneous hydrophobia are adduced by Tronchini; *De Colic. Picton.* c. xvi. obs. 1. & 2. p. 49. See other cases in *Ephem. N. C.* cent. iii. obs. 50. *Comm. Norimb.* 1740, hebd. 36. n. l. an. 1743. hebd. 5. n. 2. *apud Sanchez, Op.* T. i. p. 375. Dom. Brogiani. *De Venen. Anim.* p. 105. *Journ. de Méd.* 1757. Fevr. & Ivin, 1767. *Nou. Swiet.* V. iv. § 1130. Likewise a case of hydrophobia arising from convulsions, very elegantly described and published by Jo. Bapt. Faletus, a distinguished physician in Urbinum, is highly worthy of being recorded. See his letter, *De Raro Morbo Hysterico, in Diario Medico, Petri Orteschi*, vol. v. A particular kind of hydrophobia also frequently occurred in the epidemy of the year 1764, described by Sarcon.

328. On the eruption taking place, when, as I have said, all the symptoms are aggravated, the increase and height of the complaint, as it appeared last year at Pistoia, were indicated by the following symptoms: the cold and shivering, with which the evening fits recurred, disappeared intirely; the whole period became obscure, and although in the evening the pulse was much quicker compared with what it was in the morning, yet the distinct change of the paroxysms and remissions, which was remarkable before, became much less distinguishable. Nor is it surprising, since I have frequently observed the fever in these complaints, about the increase and

height, losing its period intirely, become continued; nay, sometimes I have observed the pulse, from being quick, become so slow that one would have believed that the febrile motion, at least as far as the pulse indicates it, had intirely ceased. The watching, moreover, to return to the description, was of longer continuance, the sleep very short, disturbed, laborious, and not refreshing, the patients starting out of it terrified, and delirious; the belly was swelled, and attended with an almost total suppression of the urine; the respiration was somewhat injured, the deglutition difficult and painful; there was a slight degree of inflammation of the fauces, sometimes attended with aphthæ, the eyes were painful and languid, sometimes red, sometimes wild and fixed; the patients lay on their back; stupor, lethargy, and subsultus tendinum were present; they breathed with their mouth open; the colour of the face was yellow; and to these symptoms were added tinnitus aurium and deafness*.

* Pinaroli, l. c.

329. In which case Fracastor mentions, that the disease is prolonged at one time to the seventh, at another to the fourteenth day, and sometimes, even beyond it. In that which prevailed at Fayence, to which I have already alluded, attended with these symptoms, or at least most of them, it continued to the ninth, eleventh, fourteenth, or

seventeenth day. At length, when the patients were affected with uncommon severity, universal convulsions supervened, together with the risus sardonius, aphonia, and lastly, death, which generally happened towards the end of the second week, or about the beginning of the third. Hoffman * thinks, that most of those who die, are cut off in consequence of gangrenous inflammation of the stomach, intestines, and other viscera, or phrenitis, or anginous apthæ, affecting the fauces, œsophagus, or larynx. Frequently the membranes of the brain are found to be of a dark colour, their vessels distended with black blood, and the cortical part of the brain somewhat livid; the stomach and intestines swelled, hard, and black; the pancreas, liver, and mesentery, enlarged †. In patients who have been cut off by hiccup, the stomach frequently abounded with black spots ‡. In others, the veins and the membranes of the brain were varicose, the lungs gangrenous and sphacelated, and the blood in the cavities of the heart black and dissolved ||. Sometimes also abscesses of the brain are present, as well as of the breast, or abdomen. Very frequently, however, no visible taint is discovered any where which can be considered as the cause of the patient's death. It then appears highly probable, that the brain and nerves at least, or the irritability of the heart, have been affected by a poisonous, subtle, and unknown principle.

The external surface of the dead bodies is generally here and there disfigured with broad spots, of various forms, and of a violet, livid, or black colour. But so prone are they to putrefaction, that they corrupt in a very short time, and emit an exceeding foul smell. Ramazzini § was very much surpris'd to find the bodies after death full of juice, not emaciated, and the features not shrivelled.

* L. c. c. xi. § v. † Dall' Arm. *Sagg. di med. prat.*
P. I. p. 19. ‡ Ramazzini, l. c. § 22. || Trogher,
apud Dall' Arm., l. c. p. 25. § Ramaz. l. c.

330. But when the disease is less deadly, and may be overcome by the power of nature or art, towards the ninth, eleventh, or fourteenth day the symptoms are diminished, the head is relieved; the senses are restored, the subsultus tendinum is allayed, and the respiration becomes natural; if there be any phlegm in the lungs, it is concocted and expectorated; the fever abates daily; the pulse becomes more uniform, calm, and raised, and the eyes and face resume their former shining and chearful appearance. The urine, which was before crude, or scanty, or of a dark colour, turbid and lateritious, or like healthy urine, and putting on the fallacious appearance of concoction, gradually becomes clear and more copious, generally without having any sediment, sometimes having a thick, white, heavy one, and remains so for several days even after the fever has ceased. Th

belly is generally loose, much bilious, concocted, fetid matter being passed, accompanied with great flatulency. On which the abdomen, if it was tense or swelled before, subsides, and becomes smooth. But if a looseness was present, as frequently happens when the *primæ viæ* abound with fordes, or the acrid humours flow from all parts to the intestines; the stools remain bilious, yellow, and thin, but from being thin, watery, and very fetid, become of the consistence of pottage, thicker, more concocted, less fetid, and less frequently passed, and remain so for several days, until they regain their natural colour and consistence. Sometimes worms are passed along with them, and a warm, uniform, refreshing sweat breaks out all over the body, and thus the disease is slowly and favourably resolved towards the end of the second, third, or fourth week at farthest; which variety of duration frequently depends on the greater or lesser degree of vitiation of the chyle with which the disease is combined, so that sometimes in consequence of this, and its combination, it may be prolonged for thirty or forty days, or five or six weeks. But its most frequent duration is from fourteen days to three weeks.

331. In not a few patients, the complaint terminates merely by insensible resolution, and as it were imperceptibly vanishes. Several recovered in this way at Pavia, Belgioiosum, and elsewhere*. Trollius never observed a perfect cri-

sis, and not even an imperfect one to take place †. Ramazzini also, to whom the most implicit credit is due, mentions, that the peasantry about Modena, recovered in consequence of the eruption of petechiæ having taken place all over the body to the very feet, and slowly departing, without any other excretion ‡. Roboret denies that the mere eruption of petechiæ was sufficient to resolve the disease, unless a copious discharge of urine, or sweat, or diarrhœa, had come on || ; but in that epidemy the petechiæ disappeared too soon, for, as he himself confesses, they scarcely remained three or four days ; as it is well known that they ought to remain for seven or eight days to resolve the disease ; nor were they mild and pure, but complicated and malignant, which deserves attention. At Pistoia, an universal sweat continuing for two days in some patients resolved the disease. In most of them there was occasion for stools, and copious urine depositing a sediment. For in that place, as well as in Voghiera, the petechiæ were combined with a bilious and gastric vitiation of the chyle §. But no one appeared to recover merely in consequence of a copious discharge of urine ¶.

* Cambieri, and Trollius, l. c. † *Ibid.* ‡ *Disf. cit.*
 § xxv. || L. c. § Pinaroli and Frambaglia, l. c.
 ¶ Pinarol.

332. Sometimes, as in other acute and febrile diseases of a bad kind, in the petechiæ necroses

and gangrenes supervene externally. But as the os sacrum and nates appear more frequently affected, most people derive them from the patient's lying long on the back, in consequence of which the parts being for a length of time pressed, are deprived of the circulation; or from the urine which is voided involuntarily, by which those parts are continually kept moist. But I am not much disposed to derive them from either of these causes, because, in other diseases, lying in the supine posture even for a much longer time, and the unconscious voiding of the urine, scarcely ever produce these effects. I consider it as being more probable that the same cause, which has given rise to gangrene of the internal viscera,—which, I have frequently observed, appears from dissection,—being carried to the surface, burns and produces mortification in the parts on which it falls. I have likewise frequently observed the skin about the os sacrum and nates, at the height of the complaint, become first red, then livid, black, and at length deeply affected with gangrene, even in those patients who had neither lain long in the supine posture, nor voided their urine involuntarily, with a remarkable and sudden diminution of the whole disease and its symptoms, soon followed by apyrexia and a restoration of the health. Nor are these parts only affected with gangrene, but others also which suffer no

pressure, and are not wet with the urine. I have seen blisters applied to the calves of the legs, or inner part of the thigh, a little above the knee, occasion deep gangrenes; I have also seen the soles of the feet, and the fingers, to which sinapisms had been applied, affected with gangrenous phlyctænæ, more or less broad and deep, followed by the same successful termination of the disease; for by means of stimulant applications, the caustic and deadly matter of the disease is drawn out to the surface*. It must not be supposed, however, that I pronounce every kind of gangrene to be critical and salutary. For I know that at times so great is the force of the corruption, that sometimes one part, sometimes another, becomes black, putrid, and mortifies, and is followed by the very worst consequences. I consider only those as salutary and critical, which are occasioned by a *metastasis*, or the disease passing from the internal to the external parts of the body.

* Dall' Armi, *Sagg. di Med. Prat.* T. 1. p. 67.

333. But the *metastasis* of the morbid matter to the surface, does not always occasion gangrene. It is frequently forced to the parotid glands, the axillæ, and other parts, under the form of tumours, abscesses, erysipelas, or œdema*; by which, if the disease is not resolved, it is frequently at least very much diminished. But the termination of the swellings of the paro-

rid glands, if they do not quickly and completely suppurate, is generally doubtful; as I have elsewhere (Vol. I. 303. et seq.) mentioned in a general way, and shall again shew when I come to treat of the prognosis. In some patients, after feeling a troublesome sensation of heat in the legs; the legs themselves swelled, and the disease terminated favourably, as we are informed by Trollius†. The petechiæ are likewise accompanied with hemorrhages of the nose, uterus, anus, and sometimes also of the eyes, by which nature endeavours to remove the disease. But when these prove salutary, when otherwise, shall be explained in treating of the prognostic marks. At Belgioiosum and Pistoia, the flow of the menses was attended neither with relief, nor injury. Pregnant women generally suffer abortion, and the foetus sometimes dies in the womb. All such as experienced an abortion, both at Belgioiosum and Stratella, had a successful recovery‡.

* Hasenöhrl, l. c. c. 2. † L. c. ‡ Troll. l. c. Pinarol. c. Selicorn. *Opusc. med. Prat.* vol. viii.

334. Occasional mention has been made of the state of the urine; but I have not sufficiently explained how various it is found in this disease. It varies in different ways. At first it is at one time thin and watery; at another time natural, and exhibits a globular, unequal, palish cloud floating in it. Sometimes also at the beginning

it is whitish, but copious ; shortly after it grows confused, like pomegranate wine, or yellowish, thick, turbid, and deposits a sediment. It likewise sometimes grows black, as if it were mixed with soot, or turns red, being slightly tinged with blood. Sometimes during the increase, and at the height of the complaint, it is nearly suppressed *, which has already been remarked, and must be considered as a fatal symptom, unless it quickly comes off thick, and deposits a sediment. Trollius, in his patients, always found it proper in quantity, seldom thin and pellucid, but generally free of sediment, frequently of a dark citron colour, sometimes of a dusky red, but never concocted, or having a proper sediment †. Pinaroli, however, found the urine on the first days of the complaint, pale, clear, and scanty ; during its increase, somewhat red and confused ; at its decline, turbid and thick, but not uniformly so ‡. Ramazzini, on the other hand, relates that the urine at the very beginning was more or less turbid, and never like that in health, unless at the decline of the disease ||.

* Fracast. l. c. † L. c. ‡ L. c. || *Diff. Cit.* § 18.

335. Hitherto I have spoke chiefly of the epidemic petechiæ. As the sporadic species of the complaint differs little or nothing from them, it would be superfluous to describe it here, as what has already been said of the former applies quite well to the latter species. With Bianchini * I would

only add, that the epidemic complaint frequently varies, according to the variety of situations, countries, seasons, habitations, patients, and the mode of treatment adopted ; nay, that that which was at first mild is sometimes converted into a malignant one, and *vice versa*. I know some very late writers, who deny that the petechiæ are communicated by contagion. I confess that it sometimes appears very doubtful whether they are contagious or not. But such unequivocal instances of their being propagated by contagion are recorded, that it cannot be denied that they have been sometimes contagious. Those which Roboret has described †, were contagious ; those also were contagious which lately committed such havoc at Frascarolum, Casamata, and Stratella ‡. Lastly, those were contagious which pervaded the whole district of Æmilia in the year 1767.

* Let. iv. p. 135, † L. c. c. 9. ‡ Angiol. Pinarol. Selicorn.

336. The petechial disease, both epidemic and sporadic, attacks every body indiscriminately. Children, young people, adults, and old people, both rich and poor, low and high, indolent and active, and the strong as well as the weak of both sexes, are liable to it *. But according to the difference of the season, and prevailing epidemy, some seem to be more disposed to it, others less so, and to run more or less risk. In Fracastor's time, few women, still fewer old men, and

scarcely any Jews, died of this complaint, when it prevailed epidemically; but young people and children, and particularly those of rank, were more severely affected with the complaint, several of whom sunk under it †. Roboret found wealthy people, and those of condition at Trent, affected more severely, and exposed to greater danger ‡. At Halle, in the year 1698, young people and adults were most liable to the disease; and men run greater risk than women; while infants, children, and those advanced in life, remained free of the complaint ||. At Montecchi, in the year 1764, the robust, and those of a sanguine temperament, and such as had reached their fortieth year, or passed their sixtieth, experienced the disease with more severity and danger, and, on the other hand, young people and the poor with much less §. At Frascarolum, however, all the young people and adults that were attacked with this disease died; and also the women were more severely affected, and many of them, particularly valetudinarians, were cut off. On the contrary, old men were less frequently, and more mildly affected, and easily bore the disease, and got the better of it ¶. At Modena also, the same thing was observed with respect to old people; but in that city valetudinarians, and weakly people, experienced the complaint in the same manner as old people **. But elsewhere, as I have already said, the inhabitants

were indiscriminately seized with the petechiæ ; those, however, who had laboured under tertian fever during the preceding autumn, were affected with the complaint in a much slighter degree ††. Nor is it uncommon for this disease to fall upon poor people first, and next to attack the opulent and great. Sometimes, however, scarcely one of the richer class of people was observed to be affected with it ‡‡. At other times, when almost all were affected with the complaint, the monks and nuns alone escaped |||| ; probably because in the monasteries regular living is more attended to, and the contagion does not find easy access to them.

* Fracast. l. c. Robor. l. c. † Ramazz. l. c. § xxxvii.

‡ *Ibid.* || Hoffman, *De Febr. sect. 1. c. x. obs. 1.* § Dall'

Arm. *Sagg. di Med. Prat. P. 1. p. 15.* ¶ Angiol. vol. viii.

Opusc. Med. Prat. del Sig. Targion. ** Ramaz. l. c. § 17.

†† Trollius, l. c. ‡‡ Frambaglia, *ibid.* |||| Ramaz. l. c. &c.

337. Likewise some countries and places are more or less infested with the petechiæ than others. It is well known that the eastern countries are remarkable on this account, particularly Egypt, Cyprus, and the other neighbouring islands ; as also Pannonia, Austria, and, lastly, almost all Europe, but particularly camps, hospitals, ships, prisons, and marshy, damp situations. When the petechiæ prevail, those persons are generally first seized with them who dwell in low, narrow,

damp, badly ventilated houses ; after them the complaint passes to the larger habitations, especially when it can be communicated to the healthy by contagion. It must not, however, be concluded that the more healthy and elevated situations escape this malady. We are told by Ramazzini, that the champaign country about Modena, and the tops of the Appenini mountains which look towards the south, were infested with the complaint at the same time * ; but that the hills at the bottom of the Appenines, as not being exposed to the south winds, did not experience the effects of that distemper. And he adds, that the complaint was milder in the country than in town ; the cause of which difference was probably to be attributed to the purity of the air, and its freer circulation through the open fields than in towns and populous cities. In the territory of Voghiera, and in the city itself, Frambaglia confesses that the low damp situations were more liable to the complaint last year, though he denies that the inhabitants of the mountains and hills escaped its attacks †. The town of Belgioiosum is placed neither in a high nor a low situation, but the village of Stratella stands before it on higher ground. But the inhabitants of both places, as well as others, experienced the epidemic complaint in all its violence ‡. Nay, sometimes the opposite of this happened. Healthy places, enjoying pure air, are infested with the complaint ; while low

marshy ones remain free of it. In the year 1767, Tuscany, and almost the whole of Æmilia, were infested with the petechial disease. I recollect that the inhabitants of Arezzo, who live in an elevated, healthy situation, were affected much more severely than others. Thus the inhabitants of Fayence, who lived in a dry soil, and little removed from the foot of the Appenines, were affected with the greatest severity; while those of Ravenna, next the Adriatic shore, and almost surrounded with stagnant waters, enjoyed perfect health.

* *Diff. Cit.* § xxvi. † Targion. *Opusc. Med. Prat.* vol. viii.
‡ Trollius, l. c.

338. There is likewise a report, that those who have been once affected with the petechiæ never experience the complaint again. But it is proved to be groundless. I have frequently met with patients who have been several times affected with the complaint. Roboret * likewise has seen several patients who had experienced the complaint two or three times. But I do not deny that such as have laboured under the petechial complaint once, are not so apt to take it again; at any rate, that they have it in a much milder degree. Nor do the intercurrent diseases, which are sometimes of various kinds, remain free of the petechiæ †. In the month of May last year, intermitting fevers prevailed at Belgiojoso, attended with petechiæ, which completely yielded to the peruvian

bark. The intermitting fevers also which occurred at Pistoia, during the prevalence of the petechiæ there, or followed them, were accompanied with petechiæ, and easily removed by the peruvian bark, as I was lately informed by Pinaroli ‡. Likewise at Milan here, in the beginning of the spring of this present year, I found the petechiæ combined with intermitting fevers among the peasantry, as if they were the forerunners of the petechial complaint which immediately after followed them; for at present, in the month of June ||, a good many patients, from the country in the neighbourhood, labouring under the petechial disease, are flocking into the hospital here.

* L. c. c. 12. † Ramaz. l. c. ‡ *Altra Lettera ec.*
Opusc. Med. Prat. vol. ix. || 1784.

THE DIAGNOSIS.

339. FROM the history of the disease already delivered, its diagnosis readily flows. But the symptoms more particularly characterising the disease are, heaviness of the head; acute headach; remarkable lassitude and torpor of the whole body and limbs; a pain in the loins, back, and shoulder-blades, like a rheumatic one, and affecting almost all the joints with great severity; anorexia; nausea; anxiety; generally a small pulse, not frequent, quick and irregular; sighing; fainting; tinnitus aurium; in most cases redness of the eyes; pain in the throat; on the fourth, fifth

sixth, or seventh day, the eruption of petechiæ occurring; subfultus tendinum; tremors of the hands; disordered mind; watching; coma; dry tongue; thirst; an aversion to drink; sometimes impaired deglutition; suppression of the urine; swelling and tension of the abdomen; delirium; convulsive motions; an anomalous, remitting, vague, and changeable fever*. And these symptoms must be considered as being almost in common to every species of the petechiæ; in the mild ones, however, they are slighter, and in the malignant more severe. But the mild species is distinguished from the other particularly by the fever, which precedes the eruption, being slighter, together with all its symptoms; by the eruption appearing first on the neck, breast, epigastrium, and then gradually proceeding all over the body to the extremities of the hands and feet; by the petechiæ being generally of a red, rosy colour; by the fever and other symptoms after the eruption abating, or almost ceasing; by the shining and calmness of the eyes, by the hilarity of the face; by the easy, uniform, and placid respiration; by the moisture of the skin; by the appearance of the urine being almost natural; by the mind becoming calm, and the pulse rising, unless it was already strong and full, as it generally is during all the rest of the disease†; lastly, by the petechiæ remaining long, namely, nine, ten, or eleven days, and slowly becoming discoloured.

loured, and generally disappearing on the fourteenth or seventeenth day ‡. All the patients at Begiojosum whose pulse was strong and not quick, after a speedy and favourable eruption shortly recovered ||. And the same thing was remarked by Cambieri, all of whose patients had such a pulse, and turned out well §.

* The symptoms peculiar to the petechiæ, before the eruption appeared, were observed in the year 1692, at Modena, to be the following: "Immenſe laſſitude felt along the back, headach, deafneſs, heat felt in the fauces, ſtupor, anxiety about the præcordia, and univerſal ſluggiſhneſs. But the pain of the back and lumbar region was ſo ſure a mark of the petechial fever as ſeldom to miſlead." Ramaz. *Diff. Cit.* § 17.

† Sims, *Observations on Epidemic Diſeaſes*, c. 2. ‡ Sagar, l. c.

|| Trollius, l. c. § L. c.

340. The primary, or eſſential petechiæ, have a great reſemblance to the acute gaſtric fevers and particularly to the *petechial gaſtric fever* (Vol. I. par. 332.), with which they may be readily confounded, eſpecially when they are combined with vitiated chyliſication. But the petechiæ differ from it, 1. becauſe they appear in all patients; 2. becauſe they break out at the beginning of the complaint, although purging has been premiſed, and the colluvies expelled from the *primæ viæ*; 3. becauſe they are uniformly conjoined with ſymptoms of indigeſtion, and neither vomiting nor purging at all change, or retard, their progreſs; while, in the gaſtric fever,

either evacuation, or both, immediately diminishes or removes the disease, or at least renders it much milder; 4. because they frequently disappear without any other sensible excretion; 5. because, when they are forced in, or disappear soon, they occasion danger to the patient's life. On the other hand, in the gastric fever, petechiæ seldom break out, and still seldomer when the disease is advanced; and they frequently take place in consequence of purging being neglected, or a heating regimen, and improper method of cure being employed, and generally are observed only in severe cases. Nay, they are prevented by the timely purging of the belly. Symptoms of indigestion are always present, and this fever is never intirely resolved without a diarrhœa; nor does any serious consequence ensue, if the eruption is quickly discussed, or repelled. They may likewise be distinguished nearly by the same marks from the *febris catarrhalis maligna Germanorum* (Vol. I. par. 414.). I have already observed (Vol. I. par. 409.) by what marks they differ from the *febris Hungarica*, to which they appear very similar.

THE PROGNOSIS.

341. NOT only physicians, but every old woman knows, that the primary or essential petechiæ are a dangerous, and often a fatal disease. But the benign species (325.) is attended with

less danger than the malignant (326.), as must appear evident. Likewise those petechiæ which come on without fever, and are not attended with it in their course, or with but a slight one, unaccompanied with severe symptoms, are generally without danger. Those also are considered as safer, which are distinct, circumscribed, and broad, and which break out first on the upper parts of the body, gradually proceeding to the very soles of the feet, and are of a bright red, and remain long, at least for six, seven, or eight days, and, lastly, gradually become pale, yellow, and slowly disappear. That happens particularly when the disease is of a mild kind, and when there is but a slight taint of the fluids ; while the vital powers remain vigorous. On the other hand, the *diffuse* ones (323.) are condemned by Strack as being pernicious, wavering, and apt to strike in ; the truth of which I myself have experienced. But those patients are in greater danger, in whom the petechiæ break out without any symptom of fever, but are followed by the fever (309.), for they are attended with more severe symptoms. The more copious and thicker they are, the greater is the severity of the disease they indicate ; as also those which appear with difficulty, and are small and scarce visible, or, as it were, deep-seated, seem to promise no more favourable termination, or at least render the disease more difficult and tedious. But the mere

quantity and thickness of them, or their sparseness and smallness, implies nothing certain, if we do not look to the other symptoms. Those which appear prematurely, that is, before the fourth day, and copiously, are generally considered as destructive †; not because they appear before concoction, as was commonly supposed formerly, but as, I think, because they generally indicate the quantity of the petechial fomes, and do not intirely exhaust it. In the epidemy of Turin, described by Richa, almost all those died in whom the eruption took place too soon. A girl of ten years of age, in whom the eruption took place on the second day, died on the sixth. The sixth day also proved fatal to a soldier, in whom the eruption had taken place on the third day. A certain surgeon, who had had the eruption on the second day, died on the tenth. Another patient was cut off on the fourteenth, after the petechiæ had broken out on the fourth ‡. Ramazzini also mentions, that all the patients in Modena, in whom the eruption had taken place prematurely, were cut off. Trollius ||, on the other hand, found the reverse of this to take place: for all those whom he observed to be covered with the petechiæ on the second day, had a milder and shorter disease, and recovered. In them also the eruption was both fuller, the spots broad, and the pulse strong. Sagar, also, observed those petechiæ which broke out on the third, fourth, and fifth

day, and must of course be considered as early ones, proved mild, and were attended with relief §. We, therefore, must not attend merely to the duration of the eruption, before pronouncing a favourable or unfavourable prognosis.

* Trollius, l. c. † Roboret, l. c. c. 12. ‡ L. c. § xxii.
 || L. c. § Cl. x. ord. 1. *Exanth. Contag. gen. iv.*

342. They likewise generally threaten danger when they at one time appear, at another time disappear, although they frequently attempt breaking out *. But they are much more to be dreaded if they disappear too soon, or suddenly strike in, as the most ample experience confirms †. At Vienna, the most lamentable symptoms were occasioned by their striking in, namely, frequent panting, and irregular respiration, weak, quick, intermitting pulse; cold sweats on the forehead and neck, and lastly death ‡. In the epidemy which prevailed at Fayence, and which I have described, although the eruption afforded relief to few, its striking in was followed by delirium, oppression at the chest, convulsions, and at length death ||. In that which lately prevailed at Belgioiosum, in like manner the striking in of the eruption threatened the utmost danger, if not actual death §. It is to be observed, however, that the petechiæ sometimes disappear, or strike in, without danger or harm; namely, when the diarrhœa, or discharge of urine, or sweat supplies their place. The small-pox themselves, if

they become depressed, or retire into the system, are often freed from inevitable danger by these evacuations supervening. On this account, perhaps, because, after the striking in of the eruption, they have sometimes observed no bad symptom arise, they have hastily concluded that the petechiæ were then symptomatic. Their colour also deserves attention. Those which are livid, brown, black, or of a blackish green, frequently afford an indication of putrefaction, or sphacelus. Likewise, when their colour was of a bright scarlet, it was considered by Fracastor as suspicious ¶. If black or green vibices are conjoined with them, they are with reason said to indicate a fatal termination **.

* Richa, l. c. § 22. Ramazz. l. c. Hasenöhrl, l. c. c. 2. Sagar, l. c. † Fracast. Forest, Diemerbroeck, Platner, Ludwig, &c. ‡ Hasenöhrl, l. c. c. 2. || Sagg. di Med. l. c. § Trollius, l. c. ¶ L. c. ** Duplanili, in a note on Buchan's *Domestic Medicine*, vol. ii. p. 17.

343. Among the marks of danger, and sometimes even of death, being about to happen, are universally enumerated the greatest loss of strength, a looseness being easily excited by a gentle medicine, a profuse evacuation as if proceeding from the dissolved fluids; either no thirst, or unextinguishable thirst; a dry, black, cracked tongue, trembling of it, and its being thrust out with difficulty; after the eruption

takes place, the respiration still remaining laborious, strait, and irregular; no relief being received from any excretion happening; an aggravation of the delirium, together with the other symptoms; after sweating, looseness, and other evacuations, phrenitis, and constant fatuity; suffocating angina, and phagedenic ulcers in the throat; a great change in the voice; dysphagia, or difficult deglutition, especially if, when there is no tumour or pain in the throat, it seems to arise from spasm or resolution of the nerves; dulness of the sight, gutta serena, squinting, dryness of the eyes, the face from being black becoming red, or livid, or cadaverous; the frequent uncovering of the breast; a cold, clammy sweat, or that which is tinged with blood, and similar saliva; thin, crude urine, not depositing a sediment, and not turbid, or black; or having a black or reddish sediment, in consequence of its mixture with blood; swelling and distension of the abdomen, attended with a loose belly, and very fetid, thin stools; ichorus, watery, frequent excretions taking place, without the patient's knowledge, attended with coldness of the extremities, a small, obscure, languid, irregular pulse, that can scarcely be called febrile, or a slow, intermitting one, unless it precedes a critical diarrhoea; true asphyxia; frequent and remarkable subfultus of the tendons and muscles; very obstinate watching, a lethargic, or comatose sleep;

and, lastly, distensions of the nerves, which are the forerunners of death being about to take place *. Likewise permanent suppression of the urine, particularly proceeding from a defective secretion of it, is esteemed to be fatal; when proceeding from a morbid state of the bladder, it is otherwise. The more of those symptoms supervene, and the more severe they are, the more certain is the patient's danger, or death; and *vice versa* †.

* Fracast. l. c. Hoffman, l. c. c. xi. § v. Roboret, l. c. xvii. Buchan, l. c. Ramaz. l. c. &c. † Fracast. *ib.* Buchan, *ib.*

344. When the petechiæ attack a person under the appearance of the *causus*, or ardent fever, they uniformly prove fatal. This is asserted by Petrus A Castro, and with reason *; for I have frequently had occasion to lament the truth of it in patients of all ages. Those of a robust, sanguine, plethoric habit, young men and adults, are generally affected with greater severity, and run greater risk. In the disease which prevailed at Montecchi in the year 1764, scarce any of those patients could be saved who had committed any remarkable error with respect to drink or eating †. Immoderate hemorrhages are generally esteemed to be bad. For when they arise from excessive tenuity and dissolution of the blood, they are commonly fatal. On the other hand, in plethoric patients and young people, even when

copious, especially proceeding from the nose, they are frequently salutary. But drops of blood trickling from the nose, denote an unavailing effort of nature, and that her power is overcome. The hiccup, not that preceding the eruption, or which is occasioned only by colluvies in the stomach, or worms, but that which follows it, and depends on inflammation of the diaphragm and stomach, or on the spasm occasioned by the petechial virus, not only obstinately resists every remedy, but generally deprives the patient of life. This was a frequent symptom at Modena, and uniformly proved fatal †. It was likewise observed there, that at the beginning of the disease, lumbrici being passed by the mouth, afforded a certain proof that death would ensue. I have already delivered my opinion concerning the aphthæ producing deep ulcerations in the fauces, œsophagus, and larynx. But those which affect the mouth and tongue do not seem so alarming. Nay, it frequently happens, that in consequence of some caustic and poisonous principle being forced by the efforts of nature to the tongue and cavity of the mouth, and as it were thrown off, not only the fever, but also the bad symptoms, are mitigated, and thus pave the way for the return of health. The abscesses which break out in the axillæ, or parotid glands, particularly in young people, frequently diminish the disease; but the tumours of these parts do not always terminate

in abscesses, especially in old people. They then either obstruct the passage of the throat by their bulk, or shew that the efforts of the system are unavailing, or, suddenly disappearing, threaten a fatal metastasis. In the years 1759 and 1760, very few patients were affected with these swellings of the parotids; but such as were shortly after died. At Belgioiosum, Trollius had only four patients, two men and two women, whose parotid glands became swelled. The men, who were advanced in life, after a lingering illness at length were carried off, while the women gradually recovered. In the town of Voghiera, some patients had slight swellings of these glands, but they soon disappeared without injury, a looseness in the mean time coming on, and supplying their place. But in the same manner as in all acute diseases, in the petechiæ, both the salutary and fatal prognostic marks are of a doubtful nature. Hence Trollius tells us, that no symptom which occurred in Belgioiosum was so severe as to be the forerunner of certain death ||. For not a few, after being reduced to the last extremity, and seemingly past all hopes, notwithstanding recovered. Nor ought we always to rely so much upon those symptoms which are universally esteemed to be salutary, as to lay aside all apprehension for the patient's safety. For not unfrequently the face of things is suddenly

changed, and death, which was not suspected to be near, approaches fast. Certain symptoms, however, must not be overlooked, the presence of which has frequently insured the patient's recovery. The chief of these are, the natural shining appearance of the eye, a raised, soft pulse, deafness, particularly about the height of the complaint, and some rest occasionally enjoyed §. The respiration also being easy, gentle, free, and, during the whole course of the disease, equable, affords grounds for favourable expectations. Pustules also rising about the lips and nostrils, when the disease is about to take a turn, or during its increase, an efflorescence being superadded to the petechiæ, or a moderate looseness occurring about the fourth or fifth day, attended with slight heat and gentle sweating, provided they are of some duration, afford a favourable prognostic ¶. The deep sleep being protracted in some patients from the ninth or tenth day to the fourteenth, or beyond it, resolves the disease; it is generally considered as favourable, if it supervenes towards the conclusion of the disease, together with other good symptoms.

* L. c. sect. 2. aph. 7. † Dall' Armi, *Sagg. cit.* P. 1. p. 15. and 17. ‡ Ramaz. l. c. § xxii. || L. c. § Trol-lius, *ib.* ¶ Buchan, l. c.

THE CAUSES.

345. AMONG the causes of epidemic diseases, and particularly of the petechiæ, I find are enumerated warm and moist states of the air during the prevalence of the south wind ; unusually variable and inconstant weather ; the prevalence of the south winds ; the want of salutary ones ; scarcity of provisions ; bad living ; the use of alkalescent and putrid meat ; grain which has been blighted *, or otherwise corrupted, or that has been deposited in damp places ; damp situations and stagnant and corrupted waters, or those which are contaminated with locusts thrown into them ; inundations ; stagnant pools, ditches, and other receptacles for water, dry and fermenting ; common sewers, or necessaries being opened, and rashly stirred ; unburied bodies ; the effluvia arising from hemp and hides steeping in stagnant waters ; the sudden escaping of pernicious vapours from caves and other lurking places ; the impure air of hospitals, ships, prisons, and work-houses, not sufficiently renewed ; the long remaining in company, or associating, with persons labouring under the complaint ; and, lastly, a lax habit of body, melancholy, gormandizing, intemperance, venery, hunger, watching, and immoderate labour.

* Ramazzini saw only intermitting fevers arise from this cause, but never petechiæ. I myself, in the year 1765, after a mildew had come on, which was not only very fatal to the corn-fields, but likewise to all the trees, observed a great many

intermitting fevers arise at Fayence, but it was not ascertained whether they ought to be ascribed to the mildew, or to the inundations which occurred on the same year. Frequently, however, petechiæ supervened in these fevers, as symptoms of them, and were removed, together with the fever, by employing the peruvian bark. Those doubtless were symptomatic and secondary, as having come on with the fever, and departed along with it, by employing the antidote. Did these petechiæ announce the epidemic which afterwards followed in the year 1767?

346. But the cause which is most frequently accused is scarcity of provisions, because generally poor people are first attacked with epidemic diseases. Hence most physicians derive the complaint from neglect of cleanliness, and narrow, damp, unhealthy dwellings. But not unfrequently the petechiæ prevail likewise epidemically when no scarcity of provisions, mildew, or vitiation of the grain, have preceded, and attack the opulent who dwell in commodious houses, and have no correspondence with the infected. Nay, they are frequently more severely affected, and run greater risk than the common people. Fracastor remarked this to take place particularly in the petechiæ of the year 1528; and after him Roboret observed the same thing at Trent. It was long after observed by Ramazzini likewise, in the petechiæ of Modena, which he could ascribe neither to scarcity of provisions, nor to the grain having been mildewed *. I myself remember, in the malignant and very fatal epidemic of the year 1677, with which great part of Italy, and parti-

cularly Tuscany and Æmilia, were infested, that at Arezzo,—which is not only situate on very high ground, and very far from marshes, but also that year abounded so much in all kinds of provisions, and especially grain of the best quality, that it alone could nearly have provided against the dearth of provisions all over Tuscany,—the disease both spread farther, and committed greater havoc, as I have already hinted. But I may repeat, that Ravenna, which lies in a lower and damper situation, and which was liable to the same changes of the weather, and calamities occasioned by the vicissitudes of the seasons, with the other neighbouring towns and districts, remained intirely untouched, and free of the general distemper; while the other more salubrious provinces, and elevated cities, were most severely affected. The history of medicine informs us, that the same thing has happened in many other epidemics. I remember also, that in the same family, employing the same kind of food, only one individual has sometimes been affected, while the rest have remained uninjured; which undoubtedly invalidates the opinion of those who would derive the cause of the disease from scarcity and badness of provisions.

* L.c. § 37.

347. But when scarcity of provisions cannot be accused, most are of opinion that the source of the petechiæ is to be sought for in the changes of the seasons and weather. But the diseases which

arise from the changes of the seasons, generally last a short time, usually not exceeding one or two seasons, as they are dispersed on the approach of another state of the air. Hence they are commonly called *stationary*, or *diseases of the season*. And although the petechiæ may be sometimes stationary, as I myself have sometimes observed, when they become truly epidemic, and prevail universally, they generally continue longer, and are protracted not for one or two seasons only, but frequently for a whole year; nay, for two years, or even three years; which may be easily learnt from their published histories. Moreover, Sydenham, that incomparable observer of epidemic diseases, during the same or similar states of the seasons and weather, discovered that one kind of epidemic does not always arise, but sometimes very different ones; whatever may be supposed by others who are probably not to be compared with him on account of the number and excellence of their observations. Nay, our countryman Ramazzini, who is intimately acquainted with the history of epidemic diseases, considered it as surprising, “that the same disease, namely, the petechiæ, continued to infect both the city, villages, and neighbouring towns, for three whole years, so different from each other in respect to the state of the weather which prevailed *.” And such instances will be found pretty frequently occurring, if a person impartially and attentively considers

the rise, progress, and termination of diseases, and at the same time the nature of the seasons and states of the weather which prevail at the time.

* *Dissert. Cit.* § xiii.

348. With regard to the other causes already (345.) enumerated, these seem to be of such a nature as to impart something to the air, by which the bodies, according as they are more or less predisposed for receiving it, are contaminated. This manifestly takes place in the air of hospitals, ships, prisons, work-houses, and military camps, into which, on any person entering, and remaining for some time, although in perfect health, one is immediately seized with the petechial disease. For the fever which is named *hospital*, *ship*, *jail*, or *camp fever*, is generally the petechial one, as I have already frequently learnt by experience; and I have the support of Monro's numerous and accurate observations made in military hospitals *. Why not, therefore, derive the epidemic petechiæ from the air containing some hidden, noxious matter, independent of the alteration of its primary qualities, as they are called †? Add to this, that the petechial disease, when epidemic, as I have already shewn, not only attacks one people in preference to another, although they live in the same climate, and use the same kind of provisions ‡, but, gradually passing from place to place, sometimes commits its devastations over whole provinces and kingdoms. It is likewise

frequently communicated by contagion to sound and healthy bodies, when they imprudently sit too long near those who labour under the complaint. Hence it appears very probable that something floats in the air, which passes from place to place without being dissipated, and accumulates, or that something proceeds from the patients bodies, which introduces itself into healthy ones, and infects them with the same taint.

* *On the Diseases of Military Hospitals.* And likewise Sebastian Cera, *De Febre Nosocomica*, p. 2. † Petrus A Castro, l. c. sect. 2. aph. 2. 3. Hasenöhrl, l. c. &c. ‡ Trollius mentions his having observed this last year at Belgioiosum; and the same thing is confirmed by Cambieri, who informs us that the epidemic petechiæ reached even to the neighbourhood of Chartusia Papiensis, but did not go beyond it, although the next village, *della Torre*, lies in the same plain, and is neither better in point of situation, abundance, or any other respect. *Vide Targioni, Opusc. Med. Prat.* vol. viii. While the disease prevailed at Verona and other cities, the dwellings of the Jews, which are generally narrow, filthy, and badly ventilated, although in the same climate, and subject to the same changes of the air, escaped the contagion, as Fracastor tells us.

349. But I must confess myself totally ignorant of the nature of that noxious matter which infects the air, and floats in it, or is extricated in the patients, and passes into healthy bodies, and occasions the contagion. I am disposed to think, however, that it is a peculiar miasma, very subtil and volatile, which, when once generated, communicates itself to the air, and is not easily separated from it and dispersed, but, on the contrary, if by acci-

dent it is rarefied and difperfed, that it may be again condensed and accumulated fomewhere by particular winds, fo as to prove hurtful. But that when introduced into the fluids of the body, or by any means generated or evolved in them, it has the power of multiplying and propagating itfelf, like a ferment, and, in the fame manner as the variolous and morbillous miasma, that it adheres not only to the air, cloaths, and covering, but likewise to other bodies in the neighbourhood, like perfumes ; and that it is principally generated and evolved in the warm climates, but lefs fo in the northern latitudes, notwithstanding that fometimes it arifes and rages in them alfo. Hence Petrus A Caſtro appears to me to have properly remarked, that the petechial diſeaſe, when it is epidemic, more frequently rages during the dog-days, lefs frequently in the winter, but with greater fury * ; although that the contrary of this too occasionally happens, appears from the hiftories of theſe epidemics which are recorded. And in the ſame manner as certain conditions of the air, and ſeaſons of the year, ſeem to be required for the evolution, or generation and accumulation of the variolous principle, and the bodies muſt be in ſome meaſure prepared for being affected by it ; ſo the petechial miasma requires ſimilar cauſes to be evolved, or generated, and acquire its noxious power : but this is not ſufficient for its committing its hoſtilities upon the human

frame, unless the body has been in some way predisposed for receiving, and being acted upon by it. From which I think it appears, why the petechiæ are at one time epidemic, at another only sporadic, and why, when they prevail epidemically, all do not feel the force of the morbidic miasma. It may likewise occasionally happen, that in consequence of some of these causes, the petechial virus may arise in some constitutions, and thus produce the sporadic petechiæ, without their being referable to contagion.

* L. c. sect. 2. aph. 7.

350. I am inclined, therefore, to consider particular conditions of the air and seasons, dearth of provisions, corrupted grain, unhealthy food, vapid wine, stagnant waters, excessive fatigue, too long watching, continued melancholy, gormandising, inebriety, excessive venery, and the like, as predisposing causes; and that by means of them the miasma is both rendered active, and the bodies fit for being acted upon (349.). But moreover, that in consequence of the variety of these causes the blood at one time verges on an inflammatory or rheumatic diathesis, at another has a tendency to colliquation and putrefaction, and at other times retains its natural crasis; sometimes that a bilious colluvies, sometimes vitiated chylication, sometimes worms intervene, and thus give rise to various combinations of the petechiæ. And that hence it is, that the petechiæ at

one time appear *benign*, at another *malignant*, sometimes *putrid*, at other times *inflammatory*, *gastric*, or of the species called *verminosa*. I do not deny, however, that the petechial miasma may sometimes be so malignant, putrid, and destructive, as not only to affect the whole nervous and fibrous system, which is a peculiar property of it, but to disorder and dissolve the blood and other fluids, nay, the whole system, even in the most healthy people, and quickly occasion corruption and putrefaction; which is particularly observable in hospitals, prisons, ships, and other places where the disease is received by contagion, and sometimes rages like a plague.

351. In which case it is highly probable that the blood is generally attenuated and dissolved by some septic and acrid principle. This would appear from the blood which is drawn being generally dissolved and thin, and soon corrupting, from the turbid, red, or black urine, or that which deposits a blackish sediment, from the fetid breath, and sweats, from the hemorrhages, colliquative diarrhœa, vibices, ecchymoses, the rapid putrefaction of the dead bodies, and similar phenomena. Hence Huxham* was persuaded, that in every instance of the petechial disease, the blood is corrupted in consequence of some kind of dissolution of it †, and, therefore, classed the petechiæ with putrid

and malignant diseases. And although it must be confessed, that frequently the blood in this disease has a tendency to colliquation,—which Richa also ‡ observed in the petechial epidemy at Turin, already frequently mentioned,—yet symptoms of colliquation are not always manifest. Ramazzini || could scarcely ascertain whether the blood was more disposed to concrete or to colliquefce, although, if he might have been allowed to conjecture, the last would have appeared to him the more probable supposition §. But it is not only frequently doubtful what tendency the blood has, while it retains nearly its natural condition; but sometimes also there is not the slightest reason to apprehend the presence of any colliquation. De Haën and Hasenöhr ¶, both at the beginning of the disease, during its progress, and at its height, that is, about the end of the second week, found it very compact, and truly pleuritic **. In fact, to be candid, sometimes nervous symptoms only sometimes colliquative and putrid ones, sometimes inflammatory and coagulative ones, as they are called, occur in the petechiæ; nay, sometimes all these symptoms occur, combined together in the same patient, so that it is a very difficult matter to determine which predominate. There is therefore need of the most attentive examination, and the greatest caution, to prevent committing any error in pronouncing the prognosis.

¶ *Essai sur les Fievr. &c. c. viii. De la Fievr. Putr. Malig. Pétech.*

† Three kinds of colliquation are commonly reckoned to exist in the blood drawn from a vein. The first is when a very scanty crassamentum floats in a great quantity of serum, and it is covered with a thin pellicle, and is very apt to run into dissolution. This is commonly named the serous and acrid dissolution. The second is when the blood shews no separation of the serum; but intirely concretes into a mucous, whitish, viscid, soft mass, with a small part of the red intermixed, which is also lax, and of a black colour, as if it were a symptom of its putrefaction. The third is that in which the blood is very red, and deposits no serum, and yet does not readily concrete. In like manner Joubert (*Hist. de la Soc. Roy. de Méd. an 1776, Paris, 1779, p. 529.*) takes notice of three degrees, as it were, of colliquation in the blood of those who die of the petechial complaint. In the first the blood is thin, and not much disposed to cohere; in the second it is dissolved by some acrid principle; in the third it becomes putrid, and colliquesces in consequence of its corruption. ‡ L. c. § 36.

|| *Dissert. Cit.* § 43. § *Id. ib.* § 47. ¶ De Haën, *Rat. Med.* P. v. p. 3. P. ix. p. 74. Hasenöhl, *Hist. Febr. Petech. Cit. an 1757. 1758. 1759.* Vogel, *Acad. Prælect.* § 148.

** In a petechial, and, as it were, pestilential fever, which raged among the peasantry around Padua in the year 1731, the blood was dense and tenacious: Morgagni, *Epist. Anat. Med.* 49. art. 22.

352. Those who are of opinion that the blood is always dissolved in the petechial disease, consider the petechial spots as so many ecchymoses, and, as it were, small drops of more or less corrupted and dissolved blood effused under the epidermis; such, for instance, as the scorbutic spots generally are, which supervene in other putrid and malignant diseases, named by us *secondary petechiæ*. There

is, therefore, no wonder if they consider them as always symptomatic. Others view the matter in quite a different light. To them the petechiæ, probably on account of their sometimes following a heating regimen, and frequently appearing first red, then livid, or blackish, appear to be nothing else than small inflammations, very apt to terminate in gangrene. But they are neither painful, swelled, nor hot, nor do they ever suppurate, nor do they always exhibit the gangrenous blackness, in so much that I should not think a person in the wrong who affirmed that they want the chief marks of inflammation. In so controverted a case, as far as I can judge, from what has already been said, it seems certain that in this disease some heterogeneous matter, of a peculiar, poisonous, and unknown nature, is secreted from the other fluids, and forced to the surface. But as it cannot arrive there without being mixed with some other fluid, which serves as a vehicle, it must necessarily, according to the variety and disposition of the fluid,—which may differ with the temperament, age, and constitution of the patient,—by sticking in the capillary tubes and minute cells (12.) of the skin, or being effused under the epidermis, form spots varying in size, shape, and colour. And as the fluid, with which the miasma is conjoined, is generally the blood; according as it is pure and uncontaminated, or recedes from its natural condition

and crasis, or is mixed with other fluids, the colour of the spots also must necessarily differ; nay, the colour they had at first, according as the fluid which occasions them undergoes any change, may gradually vary. An instance of which is afforded by the ecchymoses, in which the colour is first red, next becomes black, blue, yellow, and pale, according as the effused blood gradually goes through the various stages of dissolution. It must not, however, be supposed from this, that the primary petechiæ, of which we are treating here in particular, are considered by me as small ecchymoses; nor because the spots are generally red, and sometimes accompanied as it were with some degree of inflammation,—especially when they are of the diffuse kind,—or resemble slight inflammation, would I ever assert that they ought to be looked upon as so many slight inflammations. I confess, indeed, that the petechiæ have some resemblance both to ecchymoses and inflammation, but it is not such as to point out their nature being common. For the colour, even at the beginning, being often variable, palish, livid, or brown, their uniform figure, their being no tumour, pain, itching, or similar symptoms, sufficiently evince that they differ from both diseases, and constitute a particular exanthema, very different from them in its nature, origin, and effects, and terminating by resolution alone, never by suppuration, or abscess *.

* Schlichthorst (*Differt. de Petech.* Goëting. an. 1783, p. 7.) has made the following observations: "The petechiæ at one time put on a red, rosy, purple, or livid colour; at another time a yellow, brown, or chefnut one; sometimes a green, lead, bluish, or black; at other times all these colours are present in the same patient, and different parts of the body are differently variegated, so that the skin resembles diversified marble, as was formerly observed by Monro, Huxham, and Neucrantz, who observed red, palish, citron-coloured, greenish, and livid petechiæ at the same time; and he affirms that these different coloured spots prove fatal. Sometimes, likewise, after the eruption they change their colours in various ways; for at one time their dark colour becomes less deep, and passes into a red; at another time, on the contrary, those which appeared red become purple and livid." Which varieties, successions, and changes of colour, seem by no means to correspond either with ecchymoses or inflammations.

THE CURE.

353. THE indications in the petechial disease are the same as those in the cure of the other exanthemata. The efforts of nature, by which she endeavours to free herself from the noxious and heterogeneous principle, if they be moderate and sufficient, ought neither to be excited nor restrained (13.). On the other hand, if they be deficient, they ought to be promoted; if excessive, prudently restrained. Our main view must be, to extricate and draw forth the cause of the complaint, from whatever part of the system it has settled in, whether it be the stomach, blood, or nervous system, and with the utmost caution to obviate its symptoms. But as nature, on

whom the cure of diseases depends, claims the principal place, it is better to employ the most simple method of cure, which may co-operate with, and not controul, her efforts. For experience has very frequently proven, that those who have intrusted the cure intirely to nature, have practised with most success. And this must be attended to particularly when the petechiæ are benign, regular, pure, and not complicated ; in which case Roboret had recourse to no medicine *. In the petechial epidemy, which prevailed at Modena for three years, the most effectual practice consisted in employing fewest remedies, and to allow the disease to go through its usual stages †. At Turin, likewise, as Richa affirms, after the first days of the disease, nothing was found more advantageous by the practitioner than to abstain from remedies, and cautiously lie by ‡. Nor was less advantage derived from the most simple method of cure employed at Vienna ; nor in the petechiæ of the year 1758, Störck mentions, that not only several had a successful recovery merely from the use of wine and whey, but likewise candidly confesses, that when the whey failed of success, the patients received relief from none of the other remedies employed || ; which ought to be a lesson to those practitioners who are perpetually oppressing their patients with a farrago of drugs. In the year 1784, in

the petechiæ of Montecchi, after bleeding being employed at first, the decoction of succory alone seemed to perform the remainder of the cure §. Pinaroli rescued a great many from the grave, merely by the use of whey, without any bleeding ¶. And Cambieri employed the most simple method of cure with equal success, having succeeded in restoring all his patients to health **. I myself also have repeatedly admired the efficacy of nature in this disease; and have seen more advantage derived from prudently lying by, than from active practice. This happens particularly in the case of poor patients, who are less frequently visited by physicians, and employ very few medicines.

* L. c. c. xviii. † Ramaz. *Diff. Cit.* § 30. ‡ L. c. § 23. 29. || *Ann. Med.* i. Aug. 1758. p. 20. 23. § *Sag. di Med. Prat. Cit.* P. i. p. 15. ¶ Targion. *Opusc. Med. Prat.* vol. viii. ** *Ibid.*

354. From these remarks (353.) it manifestly appears, with what caution and circumspection the physician must enter upon the cure of the petechiæ, and of how great moment it is to act rather as the co-adjutor of nature, than to dictate to her. But because various degrees and combinations of the disease, and the other circumstances of the patient's temperament, age, and habit, and the season of the year, may cause nature sometimes to require the physician's aid; I shall proceed to enumerate the chief remedies which are occasionally employed, that the student may readily un-

derstand when he ought to have recourse to them, and what cautions he ought to employ. But I shall begin with bleeding, concerning which physicians are much divided in opinion. For while some reject it intirely in this disease, others recommend it as warmly, and both parties appeal to their own experience. It has therefore been found at one time to have been pernicious, and at another time proper and advantageous. Hence, committing the observations and arguments of both, that I may not appear prolix, I shall endeavour to draw the bounds within which it may be proper to let blood, or not. Generally the petechiæ of themselves do not require bleeding, nor do they easily bear it, unless some symptom comes on which requires it. But then also it must be moderate, that it may not exhaust the patient, who is generally already sufficiently debilitated. For copious, or repeated bleeding, has not unfrequently been known to occasion death; as it not only destroys the vital powers,—which the pulse immediately becoming languid, small, irregular, or intermitting, evinces,—but deranges the brain and nervous system in such a manner as to give rise to delirium and convulsions; whether that proceeds from the rapid colliquation of the blood, and its penetrating deeper into the brain, or from its acrimony being increased or evolved, or from the sensibility, or irritability, being diminished, or from any other cause.

355. But if symptoms of plethora be present, if the patient be in his prime, if he enjoy a good habit of body, if the pulse be strong, hard, and violent; if an acute, constant, and throbbing pain in the head distress the patient, accompanied with difficult respiration, weight at the chest, a pleuritic pain, or bloody expectoration, and dry, troublesome cough; in that case blood ought to be drawn with caution at the very beginning of the complaint. It must be observed, however, that the pulse sometimes appears great and violent, without being full and hard, as it easily gives way to the pressure of the finger; for it does not then arise from plethora, nor from an inflammatory diathesis of the blood, but from some acrid principle stimulating the vital organs; nor does it then require, or easily bear, the letting of blood. Nor does every pain in the head, though troublesome, stand in need of bleeding; for it is generally spasmodic and convulsive, and not occasioned by a congestion of blood, or inflammation. But if, as I have said, it be constant and throbbing, and conjoined with excessive heat in the forehead, and violent beating of the temporal and carotid arteries; while the face and eyes are red, and the mind appears to be somewhat disordered; then, although the pulsation at the wrist is neither great nor strong, but somewhat hard and tense, there will be need of some bleeding, to prevent inflam-

mation of the brain, or phrenitis. Nay, some then propose opening the jugular or frontal vein, provided it be done before the eruption takes place. For it is the general opinion, that it is better to abstain from bleeding while the eruption is going on. But it must not be supposed that this holds good in every case. For if great symptoms of plethora remain, or inflammation of any internal part takes place, or the eruption, on account of the plethora, seems to go on too slowly, or imperfectly, although the petechiæ already appear, it is still allowable to open a vein, which I have more than once known to be practised with advantage, and which used to be done by Petrus A Castro and Roboret. One of whom adds, that many of the nobility were cut off in consequence of its being omitted *. But the inflammation of the throat demands particular attention. If it be considerable and truly phlegmonic, and renders the deglutition difficult, as we have already seen occasionally happens, or, which is worse, even impedes the breathing, bleeding cannot be omitted without injury. A petechial fever, accompanied with inflammation of the throat, prevailed at Edinburgh in the year 1733. Almost all the patients were restored by bleeding. For sore throats prevailed even without petechiæ, and as it were constituted the stationary disease †. Last year, when the petechial disease at Pistoia, as the spring advanced,

assumed inflammatory symptoms, Pinaroli was obliged to have recourse to bleeding even a second time, and always with advantage, though it had never before been necessary.

* The best precepts concerning the employment of bleeding, of both dry and wet cupping-glasses, and leeches, have been very fully delivered by Petrus A. Castro, l. c. sect. vi. from aph. i. to aph. xxiv. † L. c. c. xv. ‡ *Edinburgh Med. Essays.*

356. But when the propriety of bleeding appears doubtful, and yet some symptom distressing the head or breast requires being relieved, blood is most safely drawn by means of wet cupping-glasses. For this kind of evacuation not only calls out the virus, by which the eruption is promoted, but also exhausts the strength less. For it appears from practical observations, that the evacuations which take place from the small vessels are much more easily borne. Hence the reason is plain, why hemorrhages from the nose in these complaints, even when copious, leeches applied to the temples, the opening of the vein on the back of the hand, and of the sublingual veins, and similar evacuations gradually made, have been attended with success; which was observed not only by the old practitioners, but has also been noticed by the moderns, among whom may be consulted the valuable observations of Manetti, a physician of the most profound learning, and extensive experience*. But at Mo-

dena, when the petechial disease prevailed there, no one ever received any injury from cupping-glasses having been employed; while venesection generally proved unsuccessful, as we are informed by Ramazzini †. Trollius, therefore, induced by the successful experiments of Ramazzini and others, not only invariably employed this remedy at the very beginning among his own patients, but likewise, if any symptom occurred which otherwise indicated bleeding, he repeated it, and always with the greatest advantage ‡. He very seldom employed phlebotomy, not because he considered it as always proper to abstain from it, but because he scarcely ever found the pulse in his patients great, strong, and hard, or other symptoms indicating its employment. But he likewise preferred the cupping-glasses to venesection, even when it seemed to be in some measure indicated, to avoid being blamed by the common people; for, during the prevalence of that epidemy, a report had become quite current, that bleeding would prove certain death. In fact, those patients recovered soonest, who entirely abstained from bleeding, or employed it with the utmost caution, and in the most sparing manner.

* *Consulto con annot. e aggiunt.* p. 38. *Firenz.* 1781. † *Diff. Cit.* ‡ *L. c.*

357. Hitherto I have briefly shewn, when, with what caution, and from what part, blood may

be safely drawn in this complaint. From which it is evident, that in circumstances the reverse of these in which it is proper, venesection is inadmissible. But our principal attention should be turned to the vital powers. If these are languid, if the pulse is small, weak, and soft, or irregular and depressed; if a tendency to fainting frequently comes on; if the heat both externally and internally scarcely exceeds the natural degree; there is no reason for letting blood. Nor does the pulse alone, although it be great, signify any thing, because it generally soon subsides; and much less, if, during the increase of the accessions, it appears so, and afterwards loses its greatness or strength. Nor does the heat alone, when it is great and acrid, require bleeding, as it may be frequently increased by a bilious acrimony, and alkalescence, or by the rarefaction or internal motion of the fluids. Besides, venesection is forbidden by the sudden and intire loss of strength, by some immoderate evacuation, by a soft, lax, or bad habit of body, by a gastric, bilious, or putrid vitiation of the chyle, and a phlegmatic, melancholic, or bilious temperament; by a colliquative diarrhœa; by dissolved blood, or a tendency in it to colliquation; by a preceding, unhealthy, bad, or noxious kind of food; by long continued passions; by immoderate study and labour; by the disease having originated from

poisonous exhalations, bad air, and contagion; by the fetid smell proceeding from all parts of the body; by the vibices; by necroses; and by a black, livid, or green colour in the petechiæ; and, lastly, by the peculiar disposition of the epidemic. For it is well known, that in some epidemics, bleeding has been found hurtful, while in others it is not only useful, but necessary. In the one described by Fracastor, venesection generally proved fatal. "So certainly," says he, "did the thing happen these some years past, that the greater part of those who were bled died*." Nor did the event prove more favourable in that of Modena, described by Ramazzini †, which I have already noticed. Richi found it absolutely pernicious in the complaint which prevailed at Turin ‡. In the petechial epidemic of 1752, 1753, at Roncegnum, bleeding reduced the strength and pulse; occasioned, or aggravated the delirium; or, at least, prolonged the disease ||. And to pass over other epidemics, in which phlebotomy proved hurtful, let us be contented with the one which Trollius, Pinaroli, Cambieri, Frambaglia, and others, observed in the year 1783. On the other hand, Roboret § affirms, that in the year 1591, at Trent, it was generally useful, and often necessary; and Petrus A Castro seemed to consider it in the same light at Verona, as, in a preface addressed to his pupils in the practice, he has ob-

served, that bleeding in all cases proved serviceable, but performed in different ways, at the proper time, and in due quantity, not sparingly, as is improperly recommended by Erasistratus ¶. In like manner at Montecchi, in the year 1764 **, at Fayence, an. 1759, 1760 ††, at Vienna, an. 1757, 1758 ‡‡, and also in Tuscany, an. 1767 |||, bleeding, when prudently performed, and at the proper time, produced the most beneficial effects. On the whole, when it was easily borne and proved serviceable, the blood was of a firm texture; but when any injury was received from it, the blood was in a state of dissolution, and lax. It is of great consequence, therefore, to foretel when bleeding will prove serviceable, and when not. With a view to which nothing is more serviceable than to inquire what diseases have preceded the epidemic petechiæ, or still continue to prevail. For if the nature of the weather which has preceded, and other predisposing causes, have induced inflammatory diseases of that kind which require bleeding; it is highly probable that such a diathesis of the blood is then combined with the petechiæ, as not only can bear, but even requires venesection. On the contrary, if the diseases which have been common before the petechiæ were of the gastric, bilious, or colliquative kind, in one word, what are called *putrid*, and the weather and other preceding causes have been such as vitiate the blood, and predispose it to dis-

olution and colliquation ; it may reasonably be supposed that there is a similar diathesis in the petechiæ, to which bleeding would prove completely hostile.

* *De Morb. Contag.* l. 3. c. 6. p. 64. † *Diff. Cit.* § 28.

‡ L. c. § 36. || *Trogher in Cit. Sagg. di Med.* P. 1. p. 20.

§ L. c. ¶ *De Febr. Malig. Punct. in præf.* ** *Sagg. di*

Med. Prat. Cit. P. 1. p. 15. †† *Ibid.* p. 60. ‡‡ Hase-

nöhrl, l. c. Störck, l. c. ||| *Targ. Tozzett. Relazion. delle*

Febri del 1767, p. 220.

358. The next place in the cure of the petechiæ is held by vomiting and purging. Concerning the employment of each I shall make a few observations. If the disease has arisen from contagion, the poisonous miasma, which has adhered to the salivary fluid, or has penetrated to the stomach, or has been inhaled into the lungs, ought to be expelled as soon as possible by means of an emetic ; next, if any remains of it are left in the system, and have pervaded it more intimately, we must endeavour to exhaust them intirely by means of the cutaneous perspiration and sweat. Thus it is generally suppressed at the very beginning. There is likewise occasion for an emetic, if the stomach is oppressed with a putrid colluvies, or if the duodenum and liver are distended with a collection of bile, which may be known by its characteristic marks (Vol. I. par. 391.). Among these, vomiting, or an inclination to vomit, is principally remarked. But every kind of vomiting does not point out the presence of a colluvies in

the *primæ viæ*. For, as I have already remarked, frequently in exanthematic diseases vomiting arises from irritation of the nerves, and in that case is immediately allayed on the eruption taking place. Sometimes, also, it depends on increased motion of the blood through the vessels of the stomach, or on congestion of it, or on some inflammation of the epigastric region. In both cases it is evident that emetics would be improper. They must likewise be rejected if any symptom forbids their employment (*ibid.*), nor must they be taken by plethoric patients, until they have been premised by bleeding. But if the intestines abound with fœces and fæces, or the vitiated bile has descended to them, it is then better to employ some gentle cathartic, as crystals of tartar, tamarinds, or rhubarb, avoiding the stronger purges, that too great a looseness, to which there is generally a strong propensity, may not be excited. But gentle purging, provided it be employed on the first days of the complaint, that is, on the second or third day, can scarcely ever prove hurtful. Some reject it because they are afraid lest it check the eruption of the petechiæ. But so far is bland and gentle purging from interrupting the eruption, that it even promotes it, as Ramazzini and Richa learnt, and as experience has frequently shewn, in the same manner as happens in small-pox. But on the eruption taking place, it is not necessary any

longer to purge the belly, unless some urgent symptom requires its being repeated, or new symptoms of a gastric colluvies supervene, indicating the necessity of it. But it is now better to administer either cream of tartar, or tamarinds, in small doses, or *per epicrasin* ; or, after the critical days, to gently open the belly, than to purge it violently. For I cannot approve of the practice of those who purge the belly daily, or every second day, neglecting and counteracting the the other efforts of nature. Nor can I agree with those who, with Strack, propose repeating even strong cathartics, because they think that the petechiæ originate from vitiated chyle in the *primæ viæ*, nay, from a tenacious mucus adhering to the intestines. For how far such an opinion departs from the truth, I think sufficiently appears from the marks I have already delivered at length concerning the causes, but particularly from the circumstance, that either purging the belly, or a diarrhœa supervening, has been observed to prove fatal in the petechial disease. Nor is it always safe, even when the petechiæ are produced, or kept up, by a gastric colluvies, to harass the patients with cathartics, properly so called, whatever Strack may say to the contrary. I shall willingly grant, that probably the bodies of the inhabitants of cold countries, who are accustomed to a hard, tough, thick, and fatty kind of

food, may be less injured by cathartics, than those who live in the warmer latitudes, and are endowed with a more sensible temperament, and laxer fluids; such as the Italians in general are, who certainly do not bear repeated purging without injury. There are cases, however, in which, although no colluvies be present, it is allowable, in my opinion, to gently purge the belly, namely, when the petechiæ disappear, and the disease takes a turn, or when a metastasis to the internal parts, or to the head, is threatened, or when the urine, from being turbid and thick, suddenly becomes thin and crude, without any other excretion supplying its place *. But after having employed gentle purging, as I have said, on the first days, clysters alone, or purified whey, are found sufficient to keep the belly open, or to gradually eliminate whatever remains of the disease may chance still to lurk in the *primæ viæ* †.

* Roboret, l. c. c. 16. † Georg. Castanea Jannones, a Sicilian physician, has demonstrated, by adducing a variety of instances, the injuries which were occasioned by purging in the epidemy of 1764. *Epist. Theor. Pract. De Purg. Agend. Ration. &c.*

359. After bleeding, vomiting, or purging, if they have been employed, the rest of the cure is performed by diluents, correctives, acidulous and gently diaphoretic remedies. Simple whey, or, if the debility requires it, that which is prepared with wine completely fulfils the intention. Van Swie-

ten, De Haën, and Hasenöhrl, give the preference to diluents, which also blunt the acrimony; as barley-water, that of scorzonera-root, marsh-mallows, and the like. With this view I sometimes find hyrogala employed; nor should I be altogether averse to it in such as are accustomed to it, and not only bear the use of milk; but are very partial to it; as the patients treated by Cambieri * were, who uniformly requested to be allowed milk, and could not bear the whey. The acrid heat, burning thirst, and tendency in the fluids to alkalescence, are wonderfully allayed and checked by melon, citron, or orange juice, added to the drink, or a little vinegar poured into it. When a greater cooling, checking, and antiseptic power is required, spirit of vitriol mixed in large quantity with the drink, is generally recommended. But it aggravates the cough, weakens the irritability of the heart, and generally irritates and disorders the stomach; nor do I think it can be administered with safety if any degree of inflammation is present. There is need, therefore, of great prudence to in some measure blunt its acidity, or to sweeten, correct, and dilute it in such a manner as to prevent its bad effects. On which subject I have already repeatedly delivered suitable observations in former chapters.

* In the *Opusc. Med. Prat.* of Targioni, vol. viii. p. 286.
287.

360. Warm diaphoretics, and acrid alexipharmacs, which were formerly very much in use, are now generally condemned at the beginning of the disease as pernicious; we ought to except the case, however, in which the disease, as I have already noticed, arises from contagion. But at the height of the disease, and towards its conclusion, when the strength is very much exhausted, they may be employed somewhat more liberally, especially if wine, or whey and wine, infusions of *cardus benedictus*, and *ruta capraria*, have not proved sufficient for raising the strength and promoting the sweats, which, during the remission of the disease, are generally attended with advantage. But they ought to be gentle, uniform, and moderate, for those which are too profuse exhaust the strength more and more, and therefore prove very hurtful. They must not, therefore, be too much excited, nor called forth by too great heat of the chamber, or by increasing the number of the bed-cloaths. I have sometimes called forth the sweat by the volatile salts, *contrayerva*, spirit of hartshorn, *sp. Mindereri*, and the like; but as soon as they flowed copiously, I dropt the employment of them, that the sweat might not exceed bounds. While the patients are covered with sweat, and the petechiæ are still present, it is disputed whether the linens ought to be changed. Experienced practitioners, if the sweat is fetid, viscid, and acrid, and the linens are not only

wet, but are covered with a filthy glutinous matter, or there is any fear of their cooling, do not hesitate about the propriety of changing them, providing the patients feel themselves at ease, and it is done with caution, and particularly at the time when the sweat ceases, or appears to be diminished *.

* Störck, *An. Med. I.* p. 75.

361. Blisters, in the same manner as in other exanthematic and malignant diseases, in the petechiæ also, both at their commencement, during their progress, and at their height, are universally employed : in the beginning, that the lingering eruption, and bad humour lurking in the system, may be quickly called out ; during their progress, that the spots, if they have struck in, may be recalled ; that the strength, if it is exhausted, may be roused ; that delirium and coma may be prevented ; and, lastly, that metastases may be avoided, and revulsion from the head or breast occasioned ; at their height, that the system may be roused from its torpor and inactivity to attempt some excretion. The parts to which they are commonly applied are the arms and legs ; but according to the various indications, and the nature of the parts affected, they may be likewise applied to many other parts, as the hairy scalp, the nape of the neck, the back, breast, wrists, ankles, or feet. Riverius observes, ' When there is very great malignity, affecting

the whole body, and the patient is distressed with the most severe symptoms, one blister applied to the neck is not sufficient, but more must be employed. When the disease is very severe, I am in the habit of applying them to five parts, namely, to the neck, to the inner part of each arm, between the elbow and humerus, and also to the inside of each thigh, between the groin and knee, with the greatest success *.” Riverius’s opinion and practice is confirmed by Ettmuller, who observes, “ If there be any fever in which blisters are proper, it is certainly the petechial one †.” A great many other writers of high authority, who propose the employment of blisters in this disease, might be adduced, but I shall pass them over, to avoid prolixity. But although blisters are with reason recommended by many, some find fault with them, or at least qualify their approbation. It is a certain fact, that in some epidemics they have by no means answered the expectations formed of them. In the epidemic petechiæ which Petrus A Castro treated at Verona ‡, and in those described by Ramazzini ||, as well as those of Turin, mentioned by Richa §, blisters were not only useless, but even hurtful. There are therefore certain epidemics, in which blisters have proved serviceable; and others in which they have had the opposite effect. It is of the greatest consequence to know the cause of this difference, that we be enabled at the proper time

to have recourse to a remedy of such immediate benefit. After carefully considering the histories of several epidemics, it appears to me that blisters afforded remarkable relief in those epidemic petechiæ which were combined with an inflammatory diathesis of the blood, or one approaching very nearly to it ; but that they were attended with no advantage, or rather with a great deal of harm, when the blood was verging on dissolution and colliquation. I would therefore advise young practitioners, before having recourse to blisters, carefully to inquire into the state of the blood. On finding it firm and sufficiently coherent, they may confidently apply blisters ; otherwise they ought to cautiously abstain from their employment, that their patients may not be injured by them. But I do not wish them to consider this rule as holding so invariably, that they ought never to depart from it, if any severe symptom occur, or the particular disposition of the epidemic points out otherwise. For it is the business of a judicious practitioner on proper occasions to depart from general rules.

* *Prax. Med.* l. 17 c. 1. p. 348. † *Oper.* vol. ii. P. 1.
Colleg. Pract. c. viii. § 4. p. 398. ‡ *L. c.* sect. vi. aph. xxx.
 || *Diff. Cit.* § 30. § *L. c.* § 24.

362. It is not my design here to take a view of all the arguments which relate to the proper employment of blisters, as I have already, in various parts of this work, touched upon them. I

shall take notice, however, of some cautions which have been left us by the very judicious Petrus A Castro. In the first place, he observes, that the *sanguine*, or *bilious temperament*, do not so well agree with blisters; but that they are better calculated for the *phlegmatic*, or *melancholic*, temperament*; because the former is naturally better formed for motion, and does not require any incentive to it; and the latter being more sluggish, has therefore occasion for a stimulus. In the second place, he remarks, that in bilious and dry habits, besides watching and excessive pain, which blisters cause, either ulcers, which are difficult of healing, or apt to degenerate into bad-conditioned ones, arise; or that, attracting none of the hurtful fluid, they disappoint our expectations†. In the third place, he adds, that in melancholic and phlegmatic people, for whom they are best calculated, we must observe whether there be any scorbutic, or œdematous, swellings in the legs. For he mentions, that in such a case blisters have given rise to incurable mortifications‡. In the fourth place, that boys and old people, who are not, however, very far advanced in old age, and are of a moist habit of body, bear them better than those who are of a dry habit and decrepid§. In the fifth place, that the best time for applying them is the beginning of the disease, not its height, nor when the patients are almost moribund§. For Trogher¶ saw patients very much

relieved by blisters, when they were applied before the eighth day, but not later. Each of which remarks, however, have their exceptions, as all rules in medicine have; nor can these be unknown to a physician who considers all the circumstances with due attention. It may be observed also, that every mortification succeeding the application of blisters does not immediately prove fatal. For sometimes it indicates a metastasis of the malignant and destructive fluid to the external parts of the body. But this is readily distinguished from the former necrosis by the remission of almost all the symptoms, and by the manifest renewal of the prevalence of nature. Lastly, when it is doubtful whether blisters are admissible, it will be safer to apply fomentations, and epispastics,—of which there are various kinds, —to the legs and feet, to attract the noxious fluid downwards and outwards.

* L. c. ‡ *Ibid.* aph. xxxii. † *Ibid.* || *Ibid.* aph. xxxiii.
§ *Ibid.* aph. xxxiv. ¶ L. c.

363. Friction of the whole body, both dry and wet, if in any case, is of great advantage in the petechial disease. By means of it, when the spots are slow of breaking out, the practitioner endeavours to draw them forth, or when they retire, or are forced in, he attempts to recall them. The ancients used carefully to rub the body with their hands anointed. They

principally employed the ointment of Aetius, which consists of water, oil, and nitre, boiled together, or otherwise mixed, and beat up. The moderns with that view employ Hungary water, or any similar one, composed of some spirit and volatile matter; and some employ vinegar. The view of them all is the same, although the means employed are different. Without doubt, gentle, warm, and dry friction, opens the pores of the skin, promotes the perspiration, and draws the fluids to the surface, and therefore assists the eruption. The friction which is performed with the unctuous liniments, softens and relaxes the dry skin, but seems to obstruct its pores, and the mouths of the perspiratory vessels. That again which is performed with spirits and other volatile things, does not obstruct them, to be sure; but I do not well know whether it coagulates or resolves the fluids, whether it opens the vessels, or rather shuts them by the stimulus it occasions. But the same doubt may be started with equal propriety concerning the friction which is performed with *oxycratum*: for, although it cannot be denied that the vinegar possesses an antiseptic property, which promises some advantage; yet its acidity and power of irritating are such as to occasion the corrugation and constriction of the vessels and their orifices, which are unquestionably irritable. Add to this, that things which are cold in their

action repel, and that such as are moist, tho' warm, are apt to turn cold; and, lastly, that in consequence of the frequent, and often imprudent, uncovering and unavoidable exposure of the body to the air, the skin cannot fail to become spasmodically affected. On which account it is better to employ gentle and warm friction of the skin, or dry cupping-glasses, applying moderately warm linens to the skin, or, if the dryness likewise requires being corrected, placing bladders full of moderately warm water near the legs on both sides under the bed-cloaths, or applying fomentations for some time in such a manner, that the skin may be moistened with a gentle vapour, without creating too great heat.

364. Concerning the drinking of cold water, as being in some fevers a most excellent remedy, and of immediate service, I have frequently spoken elsewhere, and especially in the first volume. It may likewise be sometimes allowed in the petechiæ, especially when they are accompanied with the *bilious* and *ardent* fever (par. 319.), which generally occasions great danger. In this fever, therefore, even when the eruption is going on, cold, or even ice-cold, water is recommended by some as being the only remedy. Roboret used to employ it with success in muscular, robust young men, labouring under the complaint, during the summer, accompanied with a very ardent fever, provided there were not present symptoms

of internal inflammation, and straitening of the chest. He gave cold water to his patients even to satiety. But he administered it not only as a refrigerant, but also as an evacuant. On which account he prescribed at least twelve pounds in a short time, to extinguish the heat, and promote some vomiting, or purging. When cold water was disliked, he prescribed four or five pounds of whey with the same view. Nor does Petrus A Castro think that this may be done only during the rage of the fever, and in the heat of summer, but likewise when “there is not great heat, or concoction of the humours;” for it has the power of wonderfully allaying the latent and pestilential power of the fluids conjoined with a manifest quality, provided it be drunk off cold, and in great abundance, *i. e.* in as great a quantity as the patient can take in at a draught *. And he observes, as the vomiting which is excited by it is generally useful at first, provided it be copious, it must be given at divided intervals to produce vomiting; in the mean time adding several things with a view to the putrid miasma, as drops of vinegar, or melon or citron juice, or vitriolic acid †. The ancients considered the increase of the disease as the time best adapted for that purpose. But in Italy, we give ice-cold water at any period of the disease, and employ it alone without any other aliment, or at least with very spare diet, from the beginning to the

end of the disease, and by its means complete the cure, when the violence of the heat, the strength, and the apprehension of putrefaction, indicate it. In this manner did Xaverius Bertini, a celebrated physician of Florence †, treat his own son when labouring under the complaint, without employing any other medicine; to say nothing of a variety of instances of such cures, which are universally performed in Italy. This medicine, however, requires being employed by a prudent, skilful, and circumspect physician, that no fatal consequence may be the result of its use. Petrus A Castro has seen a good many suddenly deprived of life by the cold water being inconsiderately administered, the natural heat being extinguished together with that occasioned by the disease ||.

* L. c. sect. vii. aph. viii. † *Id. ib.* aph. ix. ‡ Mar-
 on Ghisi, *Letter. Med.* lett. i. p. 33. || L. c. same sect.
 aph. vi.

365. The peruvian bark, which was formerly employed as a specific in removing intermitting fevers at least, since its wonderful powers have been gradually discovered, has been transferred likewise to the cure of a good many other diseases, so that it is by no means surprising if it does not hold the lowest rank in the cure of the petechiæ also, not in consequence of its febrifuge power, which both my own experience, and that of others, has shewn to be of no effect in this

case * (318.), but in consequence of its antiseptic, cordial, and antispasmodic quality. De Haën, perhaps, was the first, as far as I know, who employed it very liberally, and in such a dose as had not been used before, in the malignant and putrid continued fevers, and with such confidence, that he administered an ounce of its extract daily, during the whole course of the disease. After De Haën, Hasenöhrl and Störck attempted to oppose the petechiæ by employing the same remedy, and with equal liberality. And although, as appears from the clinical records of these authors, as well as De Haën, that the severity and duration of the disease were not diminished by it, all were convinced, that, in consequence of its employment, scarce any, or at least very few, died. In Sims, is to be found the description of a particular epidemic fever, which proved so fatal, that he judged it to be in some measure of a pestilential nature. It appears, in fact, to have been a malignant and putrid petechial fever, of a very bad kind. For, besides the petechial spots which quickly appeared in it, the principal, and, as it were, pathognomonic symptoms were, the greatest despair, and convulsive tremors, perpetually present, and increasing daily to the end of the disease. At the very beginning, before the putrefaction arose, after letting blood once, and next exciting vomiting, he used to expose the patients to the open air,

as in small-pox, and gave the bark in such abundance, that they consumed an ounce of it each day, nay, double or triple that quantity, or even more. He does not deny, that the febrile paroxysms were at first aggravated by administering this remedy so liberally, but they afterwards gradually abated, or at least, although the same degree of fever continued, the disease was at length successfully resolved without any one, to whom the bark had been administered, dying. It appears also, that the bark, as others had already discovered, when the strength is exhausted, when atony of the solids is present, when the nervous system is affected with a malignant poison, when there is a tendency in the fluids to coagulation, and when mortification is apt to supervene, in the malignant, putrid, and, as it were, pestilential petechiæ, is productive of the highest utility. I do not deny that there is sometimes occasion for employing a greater quantity, but I think that some moderation ought to be observed, that we may not unnecessarily oppress our patients. For the efficacy of the remedy, if it be of a good quality, does not seem to consist in employing a very large quantity, which very few can long bear without uneasiness, nausea, vomiting, or looseness, but in the prudent, well-timed, and continued use of it. But when opposite affections and states occur, by no means indicating tonics, cordial or antiseptic remedies,

a prudent physician ought then to abstain from the bark, or not to employ it so copiously.

* Ramazzini found the bark prove of little service, even when the petechial disease was drawing to a close; *Diff. Cit.* § 32. Likewise the anonymous author of the history of the epidemic which prevailed at Montecchi, as already noticed, and several others, have experienced its inefficacy. † *Malad. Epid.* p. 127.

366. Enough concerning the more remarkable remedies. It remains to subjoin, in a summary manner, some observations concerning the cure of certain symptoms which sometimes require particular attention. But concerning the treatment of the watching, comatose affections, the pain, ulceration, and aphthæ of the throat; of the thirst, and dryness of the tongue; of the hemorrhages, immoderate thirst, looseness, and suppression of the urine; of the difficult respiration, infarction of the lungs, or peripneumony, the cough, catarrh, and worms, if they happen to be combined with the petechiæ; I have already so often spoken, and particularly when treating of the purple fever, measles, and small-pox, that it would be almost superfluous to touch on the subject here again, as the very same remarks would require being repeated. I shall speak, however, of two symptoms which are not a little alarming, I mean the hiccup and flatulent dropsy of the belly. The hiccup, therefore, which precedes the appearance of the petechiæ, as well as the fruitless desire to vomit, which frequently ac-

companies it, is generally occasioned by mere irritation of the nerves, and is allayed by means of purgatives. But as there are also symptoms of a colluvies loading the stomach, it ought to be shaken off by employing a gentle emetic *. The hiccup, also, is not unfrequently occasioned by worms; in which case anthelmintics cannot be omitted. But if inflammation of the stomach or intestines causes it, as sometimes happens in an advanced stage of the disease, a fatal termination can scarcely be prevented. For, besides bleeding, which however is seldom borne well, all demulgent and correcting remedies which produce resolution, and cause a tendency to the surface, are most proper. Sometimes the petechiæ striking in, or the fomes being retained, induce this fatal symptom; as appears from the petechial spots which are found after death, both in the inner surface of the stomach and intestines, and in other internal parts. In that case, gentle diaphoretics and musk are generally recommended. And the convulsions, when they proceed from the same cause, are most successfully treated in the same manner.

* Störck, *An. Med.* i. *mens.* Decembr: p. 42.

367. It is by no means an uncommon occurrence for a tympanitic swelling of the belly to supervene in this complaint generally on the second week, as I have already remarked (327.). It is

commonly named *meteorismus*. It is occasioned by air distending the stomach, or intestines, or both. It is always found in the cavity of these parts, and is either taken in along with the ingesta, or is evolved from them by the heat, and remaining in the stomach. So long as it passes through them with freedom, and is compressed by the natural strength and resistance of the containing coats, by which it is prevented from expanding itself too much, the belly is not at all swelled, raised, or rendered tense. But if, in consequence of a spasm taking place in some part, the passage of the air through them be interrupted, it immediately becomes rarefied by the heat, expands, and endeavours to occupy a greater space, which cannot take place without a corresponding distension of the coats; hence proceed enormous flatulence and tympanitic swelling of the belly, in consequence of which it is raised, and becomes tense. The same thing occurs if the tone of the stomach and intestines is weakened: for, on their elasticity being overcome, the air is distended more freely, and, in order to make room for itself, it presses on, and violently distends all the surrounding parts. The first happens when the sensible and irritable parts of the stomach and intestines are affected in various and distant parts by some acrid principal; for instance, the bile, worms, retention of the excrements, saline, irritating, and cathartic medicines, or bad

uids proceeding from the whole body to the intestines, or stomach. For it is well known, that these parts, when they are irritated, contract and completely shut themselves. The other, again, happens when the power of the nerves belonging to these parts is resolved by the malignant and poisonous miasma, or by any other cause, or the strength of the fibres and coats, and their power of cohesion, is weakened, and almost destroyed, by the accumulation of stagnant and corrupted excrements, and their not being quickly passed. For putrefaction greatly weakens and disorders the irritability.

368. In the first case, besides the marks of the causes which I have already pointed out, the belly is frequently bound, or passes scanty, thin, arid, burning, or mucous and bloody stools; the patients not unfrequently complain of gripes, cramps, and tenesmus; and the abdomen is not only tense, and emits a tympanitic sound, but likewise, when compressed, is either all over, or in some part, much more sensible and painful. In this kind of swelling, then, emollient, relaxing, demulcent, sedative, and gentle purgative remedies, are indicated. Therefore warm, emollient, and discussing fomentations, ought to be applied to the whole abdomen; and internally lintseed-oil, or oil of olives, ought to be occasionally given in small, but repeated doses; and

bland injections of the decoction of mallows, or marsh-mallows, or chamomile, fresh butter, or lintseed-oil, ought to be administered. But if these do not relax the tension of the belly sufficiently, nor produce looseness, a little of Glauber's salt, or crystals of tartar, largely diluted with water, or an ounce or two of the syrup of succory, with rhubarb, or an infusion of tamarinds, may be taken off; or some simple honey may be added to the clysters, if there be no tenesmus present, that the excrements retained in the intestines, and irritating them, may be the more readily made to pass downwards. In this way not only does the swelling of the belly subside in a few days, but also the urine, if it had ceased to flow, begins to be discharged more freely. In the epidemy which prevailed at Fayence in the year 1759 and 1760, scarcely any of the patients who were affected with ischuria were obliged to have recourse to the catheter, although almost all of them, in consequence of the fomes of the disease passing from one place to another, were attacked with the swelling of the belly, and retention of urine (327.). But they were treated just in the manner recommended above. Tröllius likewise successfully removed the swelling of the belly by means of fomentations*.

* *Raccolt. d'Opusc. Med. Prat. del Sig. Targion.* vol. viii. lett. i.

369. In the other case, that is, when the swell-

ing proceeds from atony of the intestinal canal, and dilatation of the air, in general the symptoms just now enumerated (367.), especially the sense of pain, are absent; purging has been neglected; and the belly is bound. The tympanitic swelling must then be opposed in a very different manner. For if it is suspected that the intestines still abound with putrid excrements, from which a quantity of air is extricated, the belly ought to be first purged with repeated gentle stimulant injections, that it may be quickly freed from the putrid fordes; next tonics ought to be employed both internally and externally. Besides a little wine, which should occasionally be added to the drink, as raising the strength, resisting putrefaction, and favourable to the irritability, camphor, scordium, chamomile, and the infusion or decoction of peruvian bark, are preferable to any other internal remedy. But acids in this case, although inimical to putrefaction, because they diminish the irritability, appear to be rather suspicious. In their stead, the *liquor anodynus mineralis*, and *spiritus natri dulcis*, given in peppermint-water, or in an infusion of chamomile, are attended with advantage, and have a remarkable effect in discussing the flatus. Likewise, to clysters composed of a decoction of scordium, chamomile, or peruvian bark, may be added camphor, which both checks putrefaction, restores the tone of the fibres, and rouses the irritability. But in its employment,

both by the mouth and anus, some moderation must be observed; for, when given in too great quantity, it proves injurious to the head and nerves, and induces, or increases, the convulsions, which are so common. Some propose giving very cold water to be drunk, or to be thrown in *per anum*, and applied externally to the belly. But this must not to be attempted without mature deliberation, as it is not unattended with danger. It certainly appears better to have recourse to the more usual and safer remedies, than to attempt unknown, or doubtful ones. But if the belly be obstinately bound, it ought to be opened with crystals of tartar, or sal polychrest, or rhubarb, in divided doses, and given gradually. Lastly, the abdomen ought to be fomented with warm wine, or a plaister of laurel-berries, or of galbanum, or some other cataplasm possessing a strengthening, or gently aromatic property, should be applied to it. But it is of the greatest consequence to gently rub the whole belly with the dryest linen rags, perfumed with the vapours of amber. The ingenious Frambaglia drew out the air from the anus, by means of a common syringe introduced into it, thus gently producing a vacuum. In this manner he has observed the explosion of a great quantity of air, shut up in the intestines, succeeded by a copious discharge of the excrements.

370. I pass over that swelling which is supposed to be occasioned by air arising from the circulating fluids in a state of putrefaction, or which is caused by gangrene and corruption of the internal parts. For both the first, if it ever takes place in the living system, and the latter, would be a disease, not only of the intestines, but of the cavity of the abdomen itself; nor would it leave any hopes of a recovery. I likewise pass over various combinations of diseases with the petechiæ, as every body must perceive, that they must likewise be attended to. Let us take for an example intermitting fever, which has been more than once observed to be conjoined with the petechial fever. It is immediately discussed by employing the peruvian bark. What remains of the disease is easily and successfully overcome*. When the petechial disease is at length removed, the convalescents often remain lethargic, stupid, forgetful, and deafish. But these evils gradually go off of themselves†. In others, œdematous swellings of the feet supervene, which, in like manner, are gradually resolved, merely by the power of nature. In some patients Störck observed the face attacked with a white swelling. Such patients received relief from a blister applied to the back of the neck, and gentle stimulants‡. Nor is it an uncommon occurrence for the disease to terminate in a scabby eruption, or for the lat-

ter to come on when it is already finished. As it is critical, it ought to be allowed to go on, and not repelled by any topical application. But, if it is prolonged beyond the proper bounds, it is at length eradicated by whey, purges, and, lastly, by the warm bath §.

* Störck, *An. Med.* 1. *Mens. Octob. & Sept.* 1758, p. 28.

† Ramaz. *Diff. Cit.* § 24. ‡ Störck, *Febr.* 1759, p. 62. 63.

§ *Id. ib.* p. 26. and 60.

371. And these observations apply almost equally to the epidemic and sporadic petechiæ. Nor do those petechiæ require any other method of cure, which, on account of the badness of their disposition, their greater contagiousness, frequency, and mortality, are usually called *pestilential*. In a similar manner, also, do we cure the hospital, jail, ship, or camp fevers* (348.), when they are of the petechial kind, as is generally the case; unless that in these last, the renewal and changing of the air is so necessary, that, without it, it is impossible to check either the violence of the disease, or the contagion. The patients must then be carefully separated from people in health, and, if possible, should be removed into larger apartments, and into open, freely-circulating air; and they ought not to be crowded together in the same place.

* The hospital-fever has been treated of particularly by Pringle, who seems to have comprehended both kinds of it, namely, the *petechial fever*, and the *malignant slow nervous one*,

or *typhus*, under a particular head : *Vid. Diseases of the Army*. In the year 1779, a commentary on the hospital-fever was published by Sebastian Cera, a very experienced physician of Milan, in which he describes the fever in such a manner, that whoever reads the history of the petechiæ which I have given, must at once confess, that they are in fact the same kind of complaint. In the same commentary, lately reprinted, and very much enriched with the observations of Tissot, at that time Regius Professor in Pavia, is to be found an appendix concerning the jail-fever, which is very like the hospital one. But, among others long before him, Sydenham has left us an account of the *contagious* and *pestilential jail-fever* (*Observ. de Aëre & Morb. Epid.*), as also another of a *ship-fever*, which was almost pestilential ; and whoever desires more ample information may consult these passages.

272. With respect to the kind of diet, it ought to be spare, but refreshing, and antiseptic. On the whole, vegetable diet, as barley-water, water-gruel, or that of rice, and the expressed juices of these, are preferable. Wine and whey answer the purpose of both food and drink in some patients. Animal food is generally considered as being bad, because it is supposed to become alkalescent, and to putrefy sooner. The climate, however, the patient's habits, and peculiar disposition, must be taken into consideration. Weak chicken-broth, soups of the crumbs of bread boiled with flesh, yolks of eggs dissolved in water prepared with melon-juice, and sweetened with sugar, prove very restorative to some patients whose strength is exhausted. The addition of the vegetable acids will in some measure pre-

vent the danger of alkalescence, although, by means of the digestive power of the stomach, if it has not intirely left the patient, they are so changed that they cannot readily become alkalescent, or corrupt. Others prefer drinking wine in large quantity, which alone supports and refreshes them. But rest, cleanliness, and the frequent changing of the bed and linens, claim the principal attention. Likewise the air of the chambers ought to be frequently renewed, and impregnated with the fumes of vinegar, juniper-berries, and the like. Water also imbibes the impurities of the air. The mephitic effluvia are said to be absorbed and corrected by growing plants, if they are exposed to the rays of the sun. The patient's chamber, therefore, should be sufficiently provided with them.

373. Nor is the physician to attend merely to the patients, but he must likewise take care of himself, and of those in health around them. Hence Platner has observed, " Such as wish to remain free of this disease ought to avoid damp apartments and air ; they ought to cover themselves well, frequently changing their linen and other cloaths, and exposing them to the air, particularly if they are obliged to be much among the sick ; they ought to refrain from venery, too much eating, and other things by which the body is debilitated. Among the other prophylactic means, as they are called, the best is found

to be a glass of Rhenish wine, and tranquillity of mind *." But besides carefully attending to these cautions, it is also of great service, as I have repeatedly learnt from my own experience, to frequently wash the mouth, face, nostrils, and hands, with water, wine, or vinegar; to keep the bed-chambers clean; to air them well; to impregnate them with the vapours of very sharp vinegar, or resinous perfumes; to have the excrements quickly removed; not to eat or drink near the patients; to spit out the saliva frequently, that it may not be swallowed infected; to speak to the patients, and feel the pulse, with the face turned from them, or inclined to one side; to stand between the window, or door, and the patient, that the effluvia of the patients may not be carried by the direction of the air to the physician; and to avoid remaining long among them. But when it becomes necessary to examine the patient more narrowly, or to inspect the skin, tongue, or hypochondres, he ought to keep in his breath, that he may not inhale the vapour, or halitus, immediately proceeding from the infected body. While the petechiæ are prevailing epidemically, those persons in general are suddenly attacked with the complaint who have imprudently exposed themselves to cold, wind, or to the damp night-air, and suffered a suppression of the perspiration. It is, therefore, probable, that if any noxious miasma has passed into

the body, it is gradually dispersed by the vital powers, without injury, through the perspiratory pores, while they are sufficiently patulous; but that, when they are obstructed, it is retained and accumulated in such a manner, that the quantity of the contagion becomes sufficient for infecting and undermining the system. On which account the perspiration must be purposely promoted as much as possible; which is principally done by avoiding the causes which check it, and occasionally taking diaphoretics. I have seen a little camphor swallowed at bed-time, or an infusion of chamomile, scordium, and elder-flowers, taken in bed in the morning, prove highly serviceable. Some recommend either simple vinegar, or that which is prepared with alexipharmac infusions, to be occasionally drunk off, and are of opinion, that the septic principle, which they suppose to be of an alkaline nature, is thus changed and neutralised. For I have known some people, who, to insure themselves against the complaint, for a long time were in the habit of every day swallowing a glass of the best vinegar, on an empty stomach, and nevertheless were attacked with it most severely, and even died. I have found the moderate and daily employment of the peruvian bark more useful as a preventative. In the petechial epidemy of the years 1752 and 1753, in which the petechiæ were combined with a gastric colluvies and worms, Trogher employed with

great success prophylactic pills, composed of camphor, extract of scordium, mercury, worm-seed, rhubarb, fenna, or crystals of tartar, by means of which he mentions that worms were frequently passed †. He likewise took care to prevent the linens of people in health from being washed along with those of the patients, and that the cloaths, blankets, ticks, or bolsters, which the patients had used, should not be employed by healthy people, until, after being well washed and shaken, they were long exposed to the open air: which ought to be particularly observed by such as have the management of hospitals. Bleeding was never found to be hurtful in plethoric patients, nor purging, when the *primæ viæ* abounded with a colluvies. It was not unfrequently observed, however, that after giving a cathartic by way of preventative, the fever immediately supervened, the miasma being probably received more readily, or more speedily forced to the internal parts, in consequence of it. I should, therefore, consider vomiting as preferable to purging.

* *Ars. Med.* † L. c.

THE BENIGN PETECHIÆ,

ILLUSTRATED BY EXAMPLES.

374. DAMILANI mentions, that during the prevalence of the complaint he observed several boys affected with fever, and completely covered from head to foot with such mild petechiæ, that they walked about the streets, and recovered per-

fectly, almost by the aid of nature alone ; while in the mean time others affected with the malignant petechiæ and putrid fever were exposed to imminent risk ; nay, a great many of them were actually cut off *.

* L. c. p. 130.

375. Hasenöhrl has described two kinds of petechiæ in the epidemy which prevailed in the years 1757, 1758, 1759, which raged at Vienna * ; the one of the benign, and the other of the malignant kind. The mild kind betrayed itself by the following marks. In some it began with coryza, which was probably owing to the cold weather, for it was the winter-time, attended with an *obtuse pain and heaviness of the head* ; in others with rheumatic pains all over the body, debility, and ineptitude to motion ; in some it first appeared with anxiety of the præcordia, slight nausea, loathing of food, and vomiting. “ Most frequently, however, it began with great and sudden loss of strength, anxiety about the præcordia, unusual weakness of the limbs, without any manifest cause, heaviness of the head, slight thirst, or none at all, *heavy eyes, and a dejected face* ; which symptoms succeeded both to slight shivering and heat ; and the pulse was found quicker than usual. These symptoms generally continued to the fourth day, with such lenity that many believed the violence of the disease to be broken, and ascribed its cause to some external error committed ; but shortly after the patient’s sick-

ness increasing, the symptoms were greatly aggravated, watching, delirium, and tinnitus aurium being superadded, and fixing the patients down to their bed. The symptoms hitherto enumerated, have been very carefully collected from more than a hundred cases. When the disease proceeded regularly, upon the fourth, or at most upon the seventh day, there appeared an eruption of spots of a bright red colour, attended with *relief to all the symptoms*, at one time resembling small punctures, sometimes more extensive, particularly conspicuous on the neck, breast, and *tribiculus cordis*; shortly afterwards they appeared diffused over the rest of the body, and the extremities; the skin became moist, the urine departed little from its natural condition, and generally shewed a cloud suspended in it; the eyes, hitherto dull, at length turned more lively; the mind became settled; the pulse, which was formerly weak, rose; the other symptoms, as the watching, delirium, thirst, and *tinnitus aurium*, either ceased intirely, or at least very much abated; the functions were performed with greater alacrity; the petechial spots gradually faded in colour: at length, on the fourteenth or seventeenth day, they disappeared intirely, or separated with a slight desquamation of the scarf-skin; the appetite and strength returned. The heaviness of the head, or the vertigo, dulness of the sight and hearing, swelling of the legs, and extreme ineptitude to motion, as being symptoms

proceeding from the strength being exhausted by the disease, gradually disappeared, and caused little trouble to the physician. Such was the mildest course of the disease."

* *Hist. Med. Febr. Petech. &c. cap. 2.*

376. The spring of the year 1765, at Tyrone, in Ireland, was extremely healthy. Scarcely any diseases, except some petechial fevers, were observed to prevail. But these were so mild, as seldom to require medical aid, on account of their not being attended with any dangerous symptom. For, during their whole course, the pulse was sufficiently full and regular, the respiration easy, the mind tranquil, the thirst moderate, the skin and tongue soft and moist. They were resolved by profound sleep, which lasted several days. "I confess," says Sims, who had an opportunity of observing these petechiæ, "it served to puzzle me not a little. The first patients which I met with in the disorder, being covered with these spots, I became alarmed for their safety; but not exactly knowing what course to take, I resolved to leave the matter intirely to the conduct of nature. This I accounted better than, by pretending to assist where there was no certain indication pointing out what was to be done, to run the hazard of counteracting any of her operations. I was more confirmed in this method during the continuance of the disease, by never observing any other dangerous symptoms accompanying it; the pulse re-

remained throughout tolerably full and regular, the breathing easy, head free from delirium, thirst not great, and neither skin nor tongue very dry. As the inclination to perform too little is not in general to be objected to the medical tribe, so I have known some low retainers to it, who, by blisters and cordials, endeavouring to rouse their patients from this comatose state, brought them into imminent danger. It is true they acquired more honour afterwards by recovering some persons from a situation almost despaired of, but the traffic is a disingenuous one, below any person of a liberal mind; and it is, besides, very unsafe, as in some time people must perceive that the patients of nature come easier off than those of the doctor." So far he observes. Hence, in the treatment of such diseases, when they prevail epidemically, physicians who are not over officious, and too much addicted to employ medicines and other active means, are generally of more service to their patients than others. In fact, poor people generally recover sooner in these cases, on account of not possessing the means of employing apothecaries, to hasten their death by loading them with their drugs.

* *Sims on Epidemic Disorders.*

377. The petechiæ, the history of which I do not consider it as foreign to the subject to subjoin here, were, in a manner, of an intermediate

kind, if not intirely benign, between the benign and malignant species. The year 1751, which preceded, approached to being wet, rainy, and variable. In the winter which followed, a great deal of rain and snow fell, and it was exceedingly variable. The stationary diseases then were catarrhs, pleurifies, and peripneumonies, which in general were very much relieved by diluents and bleeding. In the spring of the year 1752, the inflammations which I have mentioned began gradually to disappear. But in their stead the *inflammatory fever*, or *synochus putris* of the ancients, came on. It again was characterised by a threefold distinction; it was either very mild, or severe, or exceedingly severe. In it the blood, when drawn, always appeared dense, coagulated, and covered with the buffy coat. Afterwards another fever began to prevail, which at first appeared mild, but shortly after became severe and dangerous, being attended with symptoms which resembled the continued malignant slow fever. As it partook of the disposition of the preceding diseases, it was therefore combined with an inflammatory diathesis of the blood, and threatened the brain and fauces in particular with inflammation. To cure it, therefore, repeated, but gentle and cautious bleeding, was necessary. This fever completely disappeared in the month of May. But it was succeeded by petechiæ, which were so universally diffused as to become almost epi-

demia, and observed the following course: The disease commenced with slight cold, or shivering, which was either preceded, or shortly after followed, by painful lassitude all over the body, accompanied with loss of strength, respiration attended with sighing, a wan countenance, very much altered from its natural appearance. The pulse at first was small, low, irregular, unfrequent, and somewhat hard; nor did it afterwards change in the progress of the disease. In some patients, however, during the two or three first days, it was great and strong, but afterwards became depressed, small, and weak, as in the other cases. In not a few instances it scarcely differed from the natural pulse, and was apt to mislead by its deceptious appearance. There were some, however, but very few, who, during the whole course of the complaint, had a great, strong, and very quick pulse. But in such patients some internal viscus was always inflamed, and the blood, when drawn, was without serum, very compact, and appeared covered with the inflammatory crust. The fever, which had come on with the symptoms already enumerated, generally observed the type of a continued quotidian, or amphimerina, sometimes of a continued simple or double tertian, or tritæophya. In all of them there was a most obstinate headach; and the temporal arteries beat much more violently and frequently

than those of the wrists. Moreover, the symptoms of common occurrence were, sighing, groaning, and complaining without any evident reason, stupor, great thirst, but at the same time accompanied with an aversion to drink, redness of the cheeks, more manifest during the paroxysms, fear, despair, flatulency, and eructation. To the stupor was gradually superadded, perturbation of mind, incoherent speaking, accompanied with constant watching, a tremulous, squeaking voice, tension of the hypochondres, constant tossing of the hands and arms, anxiety, and a copious discharge of urine, depositing a scanty, white, smooth sediment. The watching was next succeeded in the course of the complaint by delirium, properly so called, or deep sleep, silence, deafness, and the vain persuasion of the enjoyment of perfect health. Some, at the very beginning, complained of a bad taste of the mouth, nausea, and a desire to vomit; while others remained perfectly free of these symptoms. Some, whose pulse appeared to depart little from its natural condition, were on a sudden attacked with violent delirium, at first at intervals, and afterwards becoming constant; from which, however, I have never observed any bad consequence to arise. The skin was almost uniformly scorched with an acrid, burning heat, which proved still more troublesome to the head, back, loins, and inter-

nal parts. The tongue underwent great changes, according to the different stages of the complaint, and the diversity of the patient's temperament and habit. For at one time it was parched and white, at another time red, as in health. From the fourth to the seventh day, after anxiety and oppression of the præcordia, the petechiæ broke out on the back, breast, and afterwards all over the body, small, red, or of a light rose or palish colour, more or less numerous, according to the greater or lesser violence of the disease. After which the respiration became freer and more easy; the skin softer and moister; the sense of heat felt in it became milder, and the fever therefore abated. The spots remained a whole week more, at the end of which generally a copious sweat took place all over the body, and the fever itself, along with all its symptoms, gradually disappeared. Such was the most usual termination of the disease. Instead of the sweat, in others a copious discharge by the kidneys took place, which, in addition to the petechiæ, proved critical. In a very few instances a diarrhœa supervened, and only in those in whom a gastric colluvies at the same time was present. Not a few, during the progress and at the height of the disease, that is, on the second or third week, if the disease proved tedious, were attacked with a pain of the throat, difficult deglutition, hoarse-

ness, and a catarrhal cough, but without being attended with any danger. Nay, these symptoms afforded a favourable prognostic, as in a short time they put a period to the disease. I must not omit to mention, however, that there were some, though few in the town, who, being oppressed with profound sleep, with a hoarse voice, and almost deprived of speech, lying upon their back, and constantly harassed with subfultus tendinum, passed thin, crude, and watery urine. All of these, notwithstanding of every remedy, died about the ninth, tenth, or fourteenth day. Many were attacked with a hemorrhage from the nose, even though a sufficient quantity of blood had been drawn at first: this always afforded great relief. The whole illness was terminated in two or three weeks at the farthest. But if it ever exceeded these bounds, it happened only when worms were conjoined with the disease, the presence of which was at length demonstrated by their being passed by the anus, or mouth. The complaint was communicated by contagion to the domestics and visitors, especially such as attended the patients, or approached them too near, and continued long in their bed-rooms. But this contagion was principally manifest among those who lived in narrow, low-roofed houses, such as the poor people and artizans, who were obliged to live in the suburbs, or in narrow, low dwellings. It remains for me to mention the

method of cure which was found most useful. Immediately at the beginning of the disease, when the headach, heat, and throbbing of the temporal arteries, were violent, blood was let; the quantity of which was regulated by the patient's age, temperament, habit, and the pulse; and it was even repeated, if necessary, until the headach, heat, and throbbing of the arteries, were removed, or at least very much abated. One or two bleedings, and indeed sparing ones, were generally sufficient, that the slight degree of remaining strength might not be too much reduced. Neither did the smallness of the pulse, nor the good condition of the blood first drawn, deter us from venesection, provided it was sparing and moderate; for the vital powers seemed rather oppressed than resolved, and the blood was so far from being thin and dissolved, that when drawn a second time, or after the febrile motion had continued a few days, it congealed into a tenacious, firm, dense mass; frequently covered with the inflammatory crust. The blood was therefore let, though always very cautiously and sparingly, when not only the head was affected with an acute throbbing pain, but also when the external heat exceeded bounds,—which it almost always did,—or the patients felt a sense of burning internally: and it was still more necessary, if a great and strong pulse, violent fever,

and symptoms of the inflammation of some viscus, indicated the propriety of it, in which case it was better to let blood liberally. But if ever bleeding appeared to be not sufficiently indicated, or was not sufficiently well borne, to prevent the headach and violent heat, cupping-glasses were applied to the back and shoulders, or one large one was fixed to the occiput, that by drawing blood from the neighbourhood of the part, it might afford relief to the headach. But if it was not sufficiently prevented by these means, it was not unattended with advantage to apply leeches to the temples, or nostrils, particularly when some drops of blood shewed an effort of nature tending to that part. It will perhaps appear strange, that bleeding, which experience has often shewn to be hurtful in the petechial disease, under my own management was generally attended with advantage. But it must be observed, that the disposition of the preceding diseases, which were all inflammatory, and the spring-time, which favours plethora, and the morbid affections depending upon it, were the reason why not only the brain, but also the other viscera, were affected with some degree of inflammation, and therefore bleeding, notwithstanding of the small, low pulse, was not only serviceable, but necessary. Hence, when it was really indicated, or cupping-glasses did not seem to answer the purpose, it was not even omitted when the eruption was

going on, or looseness was present. Nor did any bad consequence ever result from this practice. In a word, that method of cure was employed which is successfully adopted in other exanthematic diseases, and particularly in the cure of small-pox. Every body knows, that even during the eruption in the small-pox, blood is drawn with safety, if the patient is plethoric, if violent fever, considerable delirium, difficult respiration, or the risk of peripneumony supervening, point it out, as I have elsewhere noticed. In the beginning, in like manner, after blood has been once or twice drawn, when it had appeared necessary, the belly was purged in such as complained of a bad taste in the mouth, and nausea, or perceived a sense of weight about the epigastrium, or when there were other dyspeptic symptoms. Rhubarb, conjoined with some neutral salt, when the disease was combined with worms, was considered as being preferable to other cathartics. The head was very much relieved, and the watching diminished or removed by tepid bathing of the feet, or fomentations applied for a length of time to the legs, by sinapisms and emollient cataplasms. When the patients were in a state of stupor, and lethargic, they received no small benefit from the same clysters, but of the acrid and exciting kind, so that there was never occasion to employ blisters. Besides, subacid and nitrous diluents were given

to be drunk, not only on the first week, but also on the second, as far as the patients, who were generally averse to drinking, could be prevailed upon. But as, on the second week, the vital powers were depressed more and more, and seemed, as it were, to sink, we took care to rouse them by means of some cordial mixture, and small doses of the volatile salt of hartshorn, or vipers, providing violent delirium was not present. Sometimes pills, composed of the powder of contrayerva-root, and the extract of carduus benedictus, and scordium, &c. were given. By means of which, not only the strength was raised, but also sweating, to which there was a spontaneous tendency in the system, was called forth, attended first with relief to the disease, and next followed by its resolution. But as the sweat was very apt to become too profuse, we employed cordial and diaphoretic remedies with circumspection; and as soon as we attained the desired effect, we considered it as proper quickly to desist from their employment, that the patients might not become faint from too great profusion of the sweat. But if any languor arose from this cause, and it was necessary to consult the strength, this was best done by employing good old wine. When the fever at length terminated, in some patients the nausea and loathing of food still remained. These were relieved by giving rhubarb, conjoined with neutral salts, for some days, *per*

bicrasin. Thus, if I mistake not, have I given the history of the *essential* petechiæ, which, on account of attacking many at the same time, and easily passing by contagion into healthy bodies, may be called epidemic and contagious; and I have constituted a species, if not of an absolutely benign kind, at least of an intermediate nature between benign and malignant, 1. because they proceeded very regularly; 2. because their eruption always caused some relief, both to the fever and symptoms; 3. because they proved fatal to very few, and seemed to be very far removed from that colliquation of the blood which frequently occurs in malignant, putrid, and anomalous diseases, and from their pernicious nature, which is generally attended with the very worst symptoms.

THE MALIGNANT PETECHIÆ,

IN LIKE MANNER ILLUSTRATED.

378. IN the year 1590, at Trent, the summer was very dry and warm, the autumn was in a great measure like it, and the winter very cold and snowy. A scarcity of provisions prevailed. Hence next year epidemic diseases of a bad kind prevailed, not only among the common people, but also among those of condition. In particular, as Roboret * informs us, "there were fevers which at first came on almost insensibly, with slight shivering, gradually succeeded by heat, which during the first days was not very trouble-

some, but in general attended with headache. But in some patients on the fourth day, in others on the sixth and seventh, watching, and very violent delirium, or deep sleep, from which the patient can scarcely be roused, supervened. In all of them, however, about the sixth or seventh day, in a few on the fourth, petechiæ, not unlike flea-bites, generally of a red colour, sometimes however livid, appeared chiefly on the back and breast. Along with these, in general, came on pains and inflammations in the throat, cough, with expectoration; in some, also, loss of the voice, with that of the power of deglutition; dry tongue, thirst; in some, bilious diarrhœa, but not a colliquative one; in a great many, worms passed both upwards and downwards, copious and generally salutary hemorrhages from the nose; in some, also, particularly after the deep sleep, swellings of the parotid glands, by which the patients, in like manner, were rescued from the disease, took place. In some patients, likewise, although the internal parts were so scorched, that the tongue appeared perfectly parched, and sometimes cracked, the external parts were as cold as marble. Some of the patients, during the whole course of the disease, passed urine of a healthy appearance. Others, until the sixth or seventh day—for upon those two days, chiefly, great changes took place—voided it clear, thin, for two or three days very turbid and thick, not unlike an infusion of red chiches; and thus va-

ous changes took place in different patients, according to the difference of their nature, the weakness of the parts, and the quality of the predominant fluids. Sanguine and square-built persons run the greatest risk, and were infected soonest; and these diseases were clearly observed to spread by contagion to the next persons. And although even many betook themselves to bed successively, in the same house, most of them, particularly those who attended to the physician's advice, and consulted their own welfare from the beginning, recovered; insomuch that even at the height of the disease, out of ten or twelve patients, only one died, and the opulent, and people of rank, run greater risk than the commonalty, as a much greater number of them, at least making allowance for the difference of numbers between them, died. And those patients seemed to be most severely affected, who laboured under any other taint, particularly a syphilitic one: and almost all those who died, expired in convulsions, with the urine suppressed, or were suffocated. But those who recovered from the disease, generally remained for some time dull of hearing, and half stupid; and in a great many of them the hair fell out." So far goes the author proceed. He then adds, that the petechiæ, when they appeared prematurely, were of a worse kind, and afforded no relief*, and that the disease was never resolved by the

eruption alone, unless some copious evacuation took place by the belly, or kidneys, or a hemorrhage came on †; although in the same place he does not deny, that an eruption of the petechiæ, especially when conjoined with sweat, sometimes broke the force of the disease ||; from which we learn, that the petechiæ which then prevailed were generally malignant, very seldom benign.

* *De Peticular. Febr.* an. 1591. c. i.

† *Ibid.* c. xii

‡ *L. c. c. xv.* || Same chapter,

379. But Hafenöhrl has given a much more accurate description of the malignant petechiæ, observed at Vienna in the years 1757, 1758, 1759, which I have already mentioned*. In them, at the very beginning of the disease, “ all the symptoms were more violent than in the benign petechiæ which have already been described from the same author (375.); nor were they much alleviated on the eruption taking place. The spontaneous lassitude increased daily, the *tininitus aurium*, and intense headachs, yielded to no remedy; the oppression of the præcordia, difficulty of breathing, the constant cough, sometimes accompanied with expectoration, but generally not, the *subsultus tendinum*, and the mind being disordered, threatened a fatal termination. To these symptoms were added long-continued watching, followed by delirium, sometimes during the increase of the disease, some-

times at its height, sometimes milder, at other times more violent, occasionally degenerating into downright fury, under the influence of which the patients started up out of bed, and performed the actions of the strongest men: which I remember to have observed in four soldiers, in so much that, bursting their bandages, they attempted escaping; and I have seen them actually expire in this state of phrenzy. I have observed others on the fourth, fifth, and sixth day, overwhelmed with constant and deep sleep, and slightly delirious, who were relieved by a sweat breaking out on the seventh or ninth day, accompanied with the eruption of the petechiæ. The tongue was generally moist, less frequently dry, covered with mucus, sometimes brown; the thirst was not great, seldom intense; the eyes were languid, and dull; the hypochondres were inflated, tense, and sometimes painful; the belly in a great many cases was bound, sometimes loose; the urine was at first crude, thin, colourless, sometimes bloody, or brown, at the height of the disease critical, and depositing a laudable sediment; the sweat sometimes appeared spontaneously, and equally diffused all over the body, and, when critical, always attended with advantage; sometimes, especially previous to death, when the whole body seemed to melt into very fetid sweat, it broke out and indicated the greatest danger. The pulse was at first quick-

er than usual, but soft; in some it was hard; in the progress of the complaint it was quick, intermitting, weak, and irregular. Moreover, in such as laboured under the above mentioned complication of symptoms, either the eruption did not break out at all, or it appeared of a purple, livid, or black colour: which last was of very rare occurrence; for I observed it really black in only two soldiers. Or only the vestiges of the eruption appeared, but deep seated under the skin, and generally indicating a fatal termination; for it implied, that the powers of nature had been overcome by the violence of the disease, and were incapable of propelling the hurtful matter to the surface. Likewise the sudden disappearance of the eruption proved fatal: for it gave immediate rise to very pernicious symptoms; the respiration became frequent, panting, and irregular; the pulse weak, quick, and intermitting; a cold sweat broke out on the forehead and neck; and death at last supervened. Although the eruption of the petechiæ took place immediately after, all the symptoms continued obstinately for several days; nor did the medicines employed produce any remarkable change for the better; in consequence of their employment generally upon the seventeenth day, seldom latter, swellings of the parotid glands took place, with some abatement of the fever and

other symptoms. When left to themselves, the swellings of the parotids, as I have frequently observed in the Spanish hospital, in consequence of a successful effort of nature, sometimes retired in, when a diarrhœa or a copious discharge of thick urine supervening, terminated the complaint. Sometimes they assumed a scirrhus hardness, which no emollients could resolve; or when treated with caustics, they degenerated into ill-conditioned ulcers. They sometimes swelled to such an enormous degree, as suddenly to choke the patients. I found the event turn out most favourable, when they were quickly brought to suppurate, and an outlet was made for the matter. But not only was the morbid matter transferred to the ears, but it likewise attacked other parts of the body, such as the legs, thighs, axilla, face, and nose, &c.

* *Hist. med. cit. c. 2. p. 267. in Fascic. 1. Op. min. med. et dissert. Franc. Xaver. de Wasserberg.*

CHAPTER XI.

OF THE MILIARY ERUPTION*.

380. THUS have I gradually arrived at the miliary eruption, which is so nearly allied to the petechial one, that it was formerly supposed by many, that scarcely any difference existed between them. In fact, when the miliary pustules break out first, they frequently seem like petechial spots, and are easily taken for them, unless they are examined with caution, until they rise above the skin, by which circumstance they are discriminated from the petechiæ, which are plain, and without a point. But this was not the case in a friend of mine, who was affected with the complaint. On the fourth or fifth day, an eruption took place on the breast and arms, consisting of a great number of red, plain, distinct, small spots, very like petechiæ, which, however, towards the seventh day, began to rise into truly miliary pustules, and continued so during the whole course of the disease, which was not short, nor unattended with danger, new ones rising in succession, and spreading over the whole body. Besides, both diseases are sometimes conjoined in the same person, or one succeeds to the other: which is particularly mentioned by the writers on epidemic diseases. Hence Petrus A Castro, although he properly distinguished the *maculæ pulicares*, or *peticulares*, from the *papulæ culicares*,

or miliary spots, did not think that they differed so much in their nature as to require a different method of cure †.

* *Synon.* The *Hidroa* of the Greeks, the *Sudamina* of the Latins, the *Miarola* of the Piedmontese, and the *Migliarina*, or *la migliare*, among the other states of Italy, in Germany the *Friesel*, from the frequent shiverings, or, according to others, from a coarse knotty cloth, the *Purpura* of Ludwig, *Instit. med. Clin.* pp. 1. c. 1. subject viii. and of some others, particularly of the Germans. The *Morbus Miliaris* of Gerik, *Tract. de Febr. miliar.* c. i. an. 1711. The *Miliarium morbus* of Allioni, *Tract. de miliar. orig. progress. nat. et curat.* c. 2. § 68. ed. an. 1758. The *Miliaria* of Collin, *Dissert. de Miliar.* † *De Febr. Puncticul.*

381. This disease derives its name from the spots or pustules which break out on the skin, and more or less exhibit the appearance and shape of millet-seeds, generally of various colours; as we shall hereafter shew at greater length. That they were known to the most ancient physicians, and particularly to Hippocrates*, Aetius†, and several others who followed them‡, has been demonstrated with a great display of learning and sound judgement, first by our countryman Fantonus||, and afterwards by Allioni§, both of them distinguished medical professors at Turin, and, lastly, by not a few besides¶.

* *Epid.* l. 2. sect. 3. and l. 7. sect. 2. likewise *Coac. Prænot.* sect. 1. & 2. Pustules, as if they had been occasioned by the bites of gnats, are particularly noticed in the cases of Fullo, Pherecy-

des, and that of the son Ephirano, (l. 7. *Epid.*) ; but a very remarkable passage occurs in the third section of the second book, which I shall transcribe here intirely, that every impartial person may see that the miliary eruption was not overlooked by Hippocrates, or the author of that book, whoever he was. The words are : “ About the seventh, eighth, and ninth day (*of a particular epidemic fever*), rough spots arose, of the size of millet-seeds, like the bites caused by gnats, but which were not very itchy, and continued till the crisis took place. But they did not break out in any of the male patients. None of the women, in whom the eruption broke out, died : but they became dull of hearing, and lethargic, although such as were attacked with these symptoms were not very drowsy before.” Fantonus (*De Antiq. et Progres. Febr. miliar.* p. 73.) with good reason supposes, that this passage was not sufficiently attentively considered by Vales in his commentary. For he considered those miliary roughnesses, resembling the bites of gnats, as being the spots which the Spaniards name *Tabardillo*, or petechiæ, which at that time were common in Spain, and well known. But Martianus, (*Comm. in Epid.* 2. sect. . v. 20.), who by no means looked upon these miliary roughnesses as being petechiæ, has interpreted the text better ; and asserted, that he had frequently found such in patients affected with ardent fever. Nor am I disposed to accede to the opinion of Gasteller and others, who suppose that those spots of Hippocrates were secondary, or symptomatic, differing widely from the primary and essential ones spoken of here. For they did not break out at the height, or close, of the disease, when the fluids had become corrupted and vitiated, but during its progress, and remained until the disease was resolved ; nor did they appear in any except female patients. Nor, because all of these females recovered, are we at liberty to infer from it, that it was not the miliary disease, which frequently proves fatal ; for instances are recorded of the primary, or essential, miliary disease having been mild, and terminating favourably, in the same manner as happens in the mild small-pox ; as will be shewn more clearly hereafter.

† *Tetrabibl.* 2. sect. 1. c. 129. † Galen, *De Atra Bile*,
 c. iv. Avicen. l. iv. *Fen.* i. *Tract.* iv. c. 2. Montan. *Conf. med.*
cent. 2. p. 598. Petr. Sal. Diverfus, *De Febr. Pestil.* c. 18.
 River. *Prax. med.* l. xvii. sect. 3. c. i. obs. 21. Cent. 1. Die-
 merbroeck, *De Pest. Hist.* 22. and 100. Roboret, *De Febr.*
Petic. p. 180. Petr. A. Castro, *De Febr. Malig. Punctic.*
 vii. Neucrantz, *De Purpura.* At Lubec, in the year 1648,
 in which city he observed this disease prevail epidemically in
 a malignant form for three or four years, before Welsch saw
 it at Leipfick. || L. c. § *Tract. de miliar. Orig.*
Progr. Nat. et Curat. c. xi. ¶ Molinar, Planchoni, Ga-
 teller, &c. But in the year 1741, at Gottingen, a disserta-
 tion of Jo. C. Lud. Seip, entitled *De Purpura, antiquo mor-*
bi, had appeared.

382. But although physicians from the earliest
 times discovered the miliary eruption in dis-
 eases which were generally acute and malig-
 nant, it is a matter of doubt whether they con-
 sidered them as a primary and distinct complaint,
 or rather as an accidental, and secondary, or
 symptomatic one*, as the observations which
 are to be found in their works concerning this
 eruption can by no means be compared with
 the very perfect history of the complaint which
 we now have. For it must be confessed, that
 this complaint was first observed and described
 accurately, when it prevailed with great violence
 for three years, an. 1652, 1653, 1654, among
 puerperal women at Leipfic, as appears from
 its history published by Welsch in the year
 1755 †. From that time, the attention of phy-

ficians being called to it as a particular disease, they began to examine the patients more carefully, to remark its peculiar symptoms, and to reflect on its regular progress and resolution; which became the more easily done, the more extensively it diffused itself into other cities and countries. From a variety of observations, therefore, it appeared, that it was both a primary, essential, and distinct disease, different from all others, and not hostile to puerperal women only, but to other people also, of every age, temperament, and sex. Its progress over the world, and at what periods it introduced itself into particular countries, has been most fully pointed out by the ingenious Allioni, who has amassed a great variety of authorities from all quarters, and may be consulted by such as are desirous of more ample information concerning it ‡. Since his time, many works on the subject, replete with useful observations, have appeared in succession, but sometimes so various and repugnant to each other, as to occasion no small perplexity to the reader.

* There was formerly a great contest among physicians of no small name, concerning the question, Whether the miliary eruption be essential, or critical, or secondary, or symptomatic. I have already said enough on the abuse of these terms. Some, therefore, supported the former, and others the latter opinion, with all their power. Among the abettors of the first are the names of Tissot, Störck, Collin, and others,

who, trusting to their own experience, contend that the miliary eruption is always primary, never secondary, nor factitious. At the head of the other class stands De Haën, who, however, is not always consistent with himself. I do not take upon me to determine their controversy. It only appears to me probable, that the eruption may sometimes, though rarely, be secondary, when the fluids are so vitiated by the primary disease, that some part of them is carried to the surface, and produces the miliary eruption there. But I have elsewhere considered it as probable that this may happen in many diseases, particularly putrid ones, as in the acute gastric fever, in both species of the malignant slow nervous fever, &c. And I still am disposed to support this opinion. But when the eruption is secondary, it appears to me to be at one time critical, at another time symptomatic. Examples of both kinds frequently occur in practice, and not a few of them have been published by their observers. In confirmation of the fact, I shall adduce a few examples here. Boucher, in the month of July of the year 1781 (*Journal. de Méd. Sept. 1781, p. 272.*), observed a putrid, or rather bilious continued fever, as he himself calls it, which attacked many at the same time. It was aggravated every third day. It, therefore, seems to have been a *simple bilious*, or *gastric tritaophya*. In some labouring under this fever, a slight miliary eruption took place, though not in all, which added nothing *essential*, as the author says, to the disease; nor did it at all change the proper method of cure in common to the rest. For the cure in all the patients consisted in employing gentle bleeding, emetics, and cathartics. Every body surely must name this complaint *secondary*. In the year 1780 and 1781, at Florence, during the winter an epidemic peripneumony prevailed, in which the miliary eruption at length supervened, and occasioned a favourable crisis; Targion. *Opusc. Med. Prat. vol. v. Const. Epid. di Firenze nell' Invern. 1780, 1781, c. v. § 419. p. 369.* Of which Targioni speaking, observes, "This is probably a case (*he means an inflammatory congestion in the lungs, arising from blood effused into the cellular mem-*

brane), in which, in consequence of some new infection being communicated to the blood (*namely, by the absorption of the putrid blood*), another course of fever is excited, which does not yield except to the appearance of the military eruption." Whether or not is the conjecture rendered probable by the practical observation, that every thing which promotes the putrefaction of the fluids has a particular effect in inducing the military pustules? Whether or not is the probability increased by such a crisis having been more frequently observed to take place in the second stage of the epidemy, when the bile exercised more force? The following also seems to have been a secondary, and at the same time critical military eruption: "A peasant of about twenty years of age, after being heated with labour, fell asleep upon the green grass in a damp situation, in consequence of which he was attacked with opisthotonus. His jaws were closed, but not so firmly as to prevent inserting meat and drink into the mouth. Blood was repeatedly drawn, oily and anodyne emulsions and paregorics, cathartic injections and emollients, occasionally also accompanied with the addition of opium, castor, and musk, were given; externally were applied, ointments of oleum nervinum, and next, also, of mercurial ointment, the hot-bath, &c. but without any advantage. The pulse was always somewhat febrile. At length a white military eruption appeared on the skin, and then the patient began to get better, and recovered perfectly, after an illness of two months;" Dall' Armi, *Sagg. di Med.* P. ii. obs. viii. p. 95. But let this suffice concerning the secondary military eruption, whether critical or symptomatic. For I do not design to treat in this place of any but the primary complaint.

† Godofred Welschii, *Hist. Med. Nov. Puerp. Morb. Contin. Disput. die 20mo April 1655.* ‡ L. c. c. i.

383. But it is particularly to be remarked, that not a few, after having only seen some very severe epidemy, attended with extremely dangerous symptoms, and frequently proving fatal,

have immediately been impressed with the idea of the miliary eruption being a malignant, formidable, and almost fatal disease, discarding from this complaint the other cases in which the eruption appears either without fever, or with but a slight one, or unaccompanied with alarming symptoms, and which go through their stages calmly. Nor are they agreed, whether the eruption or fever constitutes the primary complaint. But most people, considering the miliary eruption as an effect, or accessory symptom, have turned their attention only to a fever of a particular nature and bad disposition. Others have supposed that this kind of fever is peculiar to puerperal women only, from having found it frequently occurring in them, and not common to others. Some, on the other hand, have looked upon the miliary eruption, or miliary fever of puerperal women, as they call it, as very different from that which prevails epidemically. It has even been alleged, that this eruption is not to be ascribed to the disease, but to the regimen and heating remedies employed; and that, therefore, as being factitious, and proceeding from external causes, it may be avoided before appearing, or, when present, completely neglected, without any bad consequence following it. Nay, some have asserted that this disease prevails in certain countries and places only, and not in others, in consequence of which many either

never examined the skin of their patients, or only very superficially, not at all concerned about the miliary pustules as being unusual in their country ; or, if they ever met with the miliary eruption, considered it as of no importance, or only as an accidental efflorescence *. There is no wonder, then, that such a difference of opinion concerning the method of treatment in this disease, has prevailed, as to leave one in doubt to which he ought to attach himself.

* Hence perhaps it happened, that the miliary disease was later of beginning to be known in certain countries. Add to this, that the spots are sometimes so small, and alter the colour of the skin so little, remaining transparent; that if they are not viewed transversely, and between the eye and the light, they cannot be discovered. They are very apt, therefore, to escape superficial examination. I remember once to have gone to a town in which the miliary eruption was said to be unknown, and never to have been seen. While I remained there I fell in with some patients, in whom, from the usual symptoms, I predicted the appearance of the miliary eruption, which, in fact, in a short time took place. From that time both the sporadic and epidemic miliary eruption were taken notice of by careful observers, occurring both in women and in men. Gasteller also, and Planchon, the last writers among the French on the miliary eruption, seem to ascribe the late appearance of the complaint elsewhere to the same cause.

384. In treating of a subject involved in such difficulty, I do not flatter myself with the hopes either of rescuing it from its present obscurity, or of throwing much new light upon it. But, guided by the long practice I have had, and the

light of reason, and calling to my aid the assistance which the latest authors afford me, I trust I shall conduct myself in such a manner as to convince an uniform attachment to the love of truth alone in the course of my investigation. I shall, therefore, first mention, whether the miliary eruption, like the other exanthemata (380.) of which I have spoken, occurs sometimes without fever; next, whether it takes place with fever, and of how many kinds it is. With regard to the first, no person has explained the matter more clearly than Fantonus, who observes, "I consider that the miliary eruption, which occasionally occurs without fever, is common to almost all nations. Of this kind is that which Hippocrates, and other Greek writers, have named Hidroa, and the Latins Sudamina*, or sweat pustules †." And the same learned author subjoins, that two species of sudamina are established by Aëturius and Serapion, the one of a *red colour*, the other much less so, or phlegmatic, which would be now called *white*, and that from a *certain degree of heat* it is generally named *suffer-furas*, as Fracastor tells us, and by the Sicilians *bruxoli*, or *brusoli*; but by the Neapolitans, as we learn from Ingrassias, *migliarino*, from being very like millet-seeds. And he adds, "The miliary pustules are properly named, on the whole, and are afterwards divided into red and white." Certainly Bontius seems to speak of the red ones as

occurring frequently among the Indians, “ which, without being accompanied with any fever, occasion roughness and very uneasy itching of the skin.” And he affirms, “ that persons newly arrived in India are affected with most severity †.” I cannot omit the rest of Fantónus’s words, as making very much for my purpose. He proceeds ||, “ Fabius Paulinus, and several other followers of Galen, think that the *hidroa*, or pustules of which we are here speaking, arise from the exudation of bilious and very acrid sweat: Fernelius, however, supposes that they proceed from a portion of that fluid being retained under the epidermis, and not being capable of escaping through the perspiratory pores. But the miliary pustules break out frequently both during sweating, and sometimes also in a dry habit of body. For although the constant flow of the cutaneous perspiration, like brine, is a stimulus calculated for exciting them, yet such an eruption is easily excited, merely by heat, and an appulse of acrid blood to the surface, especially when some external cause is superadded. When, therefore, it is a warm country, or the summer-time, they most commonly break out in the arms, breast, back, and other parts of children and young people.” Which every person knows happens, not only in children and young people, but likewise in such as have attained their full growth.

* I foresee that not a few will object to my employing the *hidroa* and *sudamina* of the ancients, as synonymous with the mi-

iary pustules. For they think, that by these terms the ancients understood a disease quite different from the miliary eruption; so that those who deny that the miliary pustules, when they break out in their patients, are really so, immediately allege that they are the *sudamina*, or *hidroa*. But they only change names, and not the disease. Let us now listen to Forest on the subject. The sixtieth observation of his seventh book is entitled, *De Puerpera Papulas Rubentes Habente*. In this woman, in the year 1556, on the fourteenth day after delivery, miliary pustules supervened, which, on being forced in by cold, were succeeded by great oppression and straitening of the præcordia, attended with a very weak pulse. But in the scholium on the case he concludes, that these spots were the *sudamina*, or *hidroa*, and, after recommending a diaphoretic regimen, that the fomes of the disease might be called to the surface, he concludes thus: "All *hidroa* and *sudamina* are not so dangerous; we must, therefore, observe whether they are attended with any malignity, for those which take place without fever occasion no inconvenience; in the mean time, however, we must not despise these pustules. For in whatever manner they are repelled, by checking the motion of nature, they are apt to prove injurious, and occasion the most severe symptoms, as the following example demonstrates:" namely, the sixty-first observation, which is inscribed *De Muliere Sudamina habente, et a medicastis male tractata, unde tandem mors subsequuta est*. In the scholium on this last history he remarks, that not only *hidroa* and *sudamina* of a red colour exist, likewise another species, namely, the *white* or *crystalline*, such as Fernelius has described under this name in the following words: "They are small, watery pustules, which suddenly break out here and there over the surface of the body, but more frequently on the hands and feet, of the size of millet-seeds, full of water, without any redness or pain." From these words, if I mistake not, it appears evident that the *hidroa* of the ancients answers intirely to the miliary eruption of the moderns, and that two kinds of it were known, long before Welsch wrote upon the disease which proved fatal to puerpe-

ral women in Leipſick; namely, one *benign*, the other *malignant*, and both of them diſtinguiſhed by the colour of the puſtules into *red* and *white*, as the miliary eruption commonly is. Which I ſhould wiſh to be particularly attended to, that we may not be miſſed by the authority of De Haën and his followers, and conclude that the *hidroa* differ from the truly miliary puſtules.

† L. c. p. 66. 67. ‡ *Med. Ind.* l. iv. c. 18. || Fant. l. c.

385. Beſides the authors already mentioned, Hoffman makes mention of the red miliary eruption accompanied with fever*. Gerik was of opinion, that it ought to be called the miliary diſeaſe, not the miliary fever, becauſe this eruption is ſometimes obſerved unaccompanied with fever †. Ludwig preferred giving it the name of *purpura*, to fever, becauſe it is ſometimes unaccompanied with it ‡. Juncker alſo affirms, that ſome are affected with this complaint without fever, ſo as to be able to go about their uſual occupations, and to feel no inconvenience except an itching under the ſkin ||. Nor does Vogel § altogether differ in opinion from him, although he is afterwards at pains in ſome meaſure to correct what he has advanced. Their opinion is confirmed by a practical obſervation of Damilani, who obſerves: “ I have ſeen miliary puſtules ariſe on the ſkin in great numbers, raiſed, diſtinct, and cryſtalline, accompanied with very fetid ſweat, in a countrywoman of my own, who is ſtill living, without her having the ſmalleſt ſymptom of fever. The ſweat was univerſal, and her

pulse was very soft, full, but very slow ¶." And Delisle makes a similar remark **. Collin also saw the miliary eruption, both red and white, in two patients, without being accompanied with fever ††; and although he allows that these instances are of rare occurrence at Vienna, he affirms that they are sometimes found there, attended with a pulse which is scarcely febrile, with some degree of lassitude, but without any great derangement of the functions ‡‡. And, if I may be allowed to subjoin my testimony, I have more than once had an opportunity of seeing the miliary pustules even in puerperal women, both of a reddish-white, and crystalline colour, unattended with fever. These are named by some, *spurious*, and *fatuae* |||. They may name them so, if they please, provided by that name the miliary eruption is understood. But that no one may deny that that eruption is truly miliary, let him remember, that although it is not accompanied with actual fever, some uneasy illness, restlessness, and anxiety, precedes the eruption, after which the pustules rise on the surface of the skin, having the figure of the miliary eruption, more or less itchy, that they gradually increase, sometimes become ripe; and that from being red, or diaphanous, as if pus were formed, they become white, break, dry, and terminate in mealy scales, the scarf-skin drying, and falling off in crusts. But if they are rashly

or accidentally forced in, anxiety, pains, delirium, convulsions, and other worse symptoms, together with fever, arise; and if these symptoms are not acknowledged to be peculiar to the miliary eruption, I know not what other symptoms can. The first distinction, therefore, of this eruption, in my opinion, should be, the *morbis miliaris apyreticus*, or that unaccompanied with fever. Sometimes this species returns frequently, particularly at certain times of the year, and sometimes also it is long protracted, and becomes almost habitual; and hence in Germany, where this happens more frequently, it is called *purpura chronica*, frequently occurring in scorbutic people, and those affected with any other inveterate taint of the blood. The Germans thought proper to name it *purpura*, from the red colour of the spots, although that name is also found to be given by them to the white, or crystalline pustules, the epithet denoting their whiteness being added. I know a gentleman, who is affected with arthritic affections for the greater part of the year, in whom this species of miliary eruption occasionally supervenes, and goes through its stages regularly, terminating in a few days, without any severe febrile accompaniment.

* *Med. Rat. Syst.* T. 2. sect. 1. c. 9. p. 86. † *Tract. de Febr. miliar.* ‡ *L. c.* § 211. || *Tabul.* lxxv. N. iii. § *Prælect. Acad.* § 142. ¶ *Nuov. Trat. Pratic. &c.*

Mondovi, 1774. ** *Dissert. sur la Fievr. Miliair. des Femm. en couche*, p. 17. and 18. †† *De Miliar. des Femm. en couche*, p. 7. & 18. ‡‡ *De Miliar. rectaque Med. Rat.* p. 31. || L. c. p. 67. ¶¶ Damilani, l. c. p. 41.

386. Generally, however, as I have elsewhere shewn (384.), the miliary disease is conjoined with fever. Hence it has happened, that most writers have given it the name of *miliary fever* *. I shall call it, however, the *morbus miliaris pyreticus*, or the febrile miliary disease; and this will be another distinction derived from the nature of the complaint. But the nature of the fever, which precedes and accompanies it, is so variable, that it cannot be referred to any known or fixed genus, in the same manner as the fever accompanying the petechiæ, or other eruptions, of which I have already treated at sufficient length. For at one time it assumes the appearance of a quotidian remittent, at another time that of a simple tritæophya, sometimes of an intermitting tertian, at other times of a catarrhal, or rheumatic amphimerina, sometimes of a malignant flow nervous fever, sometimes of an inflammatory and ardent one; as will appear better from the description of it, which I am about to deliver.

* *Synonyms.* The *Febris Culicaris* of Petr. A Castro, *De Febr. Punctic.* sect. 1. aph. vii. The *Febris Miliaris*, or *Vesicularis*, of Hamilton, *Tract. de Febr. Miliar.* c. 1. The *Febris Purpurea*, or *Miliaris*, of Juncker, tab. lxx. The *Purpura cum febre* of Ludwig, *Inst. med. Clin.* § 211. The *Purpura Miliaris* of Salz-

man, *Hist. Purp. Mil. Argentorat. et viciniam infestant.* Argentorati, 1766. The *Miliaris* of Sauvages, *Nosol.* cl. 3. ord. 1. gen. v.; of Sagar, cl. x. ord. 2. G. 7.; of Franc. Beretta, *Dissert. de Miliar. nat. different. et curatione*, 1778.

387. Nor do the miliary pustules vary less in size and colour than in numbers. They are generally like millet-seeds, raised, hardish, and resisting the touch, so as to be easily and distinctly felt *. Sometimes, though rarely, they are larger. In a sanguine young man, of robust habit, I have observed them not unlike the distinct small-pox, in size, redness, and colour. They frequently appear less; nay, are sometimes so small, as to be no larger than pin-points, and are scarcely discernible, unless viewed opposite to the light, or transversely. But they always render the skin more or less rough, and are discovered only by a nice touch. In some they immediately appear red; in others they do not change the colour of the skin, being not unlike small vesicles full of a limpid fluid. These are commonly and properly called *white*, or rather *crystalline*. Sometimes they are red only about the bases, and on the top shew a small pellucid vesicle, or one filled with a milky fluid, and thus are of a variable and inconstant colour, especially those which are called *white* †. Sometimes they are found both red and crystalline, and of a pellucid red, and sufficiently manifest and distinct in the same patient. These, with Vogel and others, I name *mixed* ‡. But accor-

ding as they increase in size they frequently change their colour. Those which were red not unfrequently, on ripening, pass into white, milky, or purulent ones ; and those which were crystalline, and contained a pellucid lymph, become opaque, milky, or even slightly red around ; and all of them at length dry and fall off in scales. But they differ in quantity, in some cases appearing numerous and crowded, in others few and sparse. Sometimes also, whether they are red or white, they run together ||. Sometimes such as run together form vesicles here and there, of the size of a pea, with a red circle §. Generally these variations of the colour and shape seem to depend upon the patient's temperament, habit of body, age, and other circumstances ¶. For sanguine, young, and plethoric people, are covered with red pustules ; phlegmatic, weak persons, of a moist habit of body, as children and women, or such have been exhausted in consequence of great evacuations, particularly of blood, are covered with crystalline and white ones **. Among those which do not change the colour of the skin, must be noticed that variety which resembles a goose's skin, seen and described by Mezerey †† and Barailon ‡‡. It breaks out in particular about the neck and hypochondres ; and although the skin retains its colour, yet it is here and there interspersed with some redness. Barailon and Delisle enumerate other distinctions of the pustules ; but because

they either belong as varieties to those already mentioned, or seem referable to the petechiæ and other eruptions, I judge it proper to pass them over in silence. The distinction of them, therefore, into *red* and *white*, under which every description of miliary eruption is commonly comprehended, appears to be frivolous; or, if it is not so, doubtless it is not sufficiently applicable to every species and variety of the disease. And I can still less accede to the opinion of those who suppose, that the white and crystalline pustules are always accompanied with malignity, but that the red ones are of a benign disposition. For that both kinds may be benign or malignant, is confirmed by the experience of practitioners; and some even have generally found the red ones of a worse kind than the white |||. Ludwig, therefore, with good reason remarks, that “either the benign or malignant nature of the disease appears rather from the causes and symptoms, than from the difference of the pustules §§.”

* Ludwig, l. c. § 214. † *Id. ib.* ‡ *Acad. Prælect.* § 136. || *Id. Acad. Prælect.* § 137. Geolike, *Diff. de Purp. alb. Confl. Francof. ad Viad.* 1740. Störck, who saw the red confluent miliary eruption; *Ann. Med.* 1. p. 66. § Vogel, l. c. ¶ Ludwig, *ibid.*

** Damilani remarks, that a lingering eruption is whiter than usual. But this appears to proceed from the repeated bleedings which are generally employed during the whole course of the disease, while the eruption is going slowly on.

†† *Method. Aisée, &c.* p. 7. ‡‡ *Hist. de la Soc. Roy. de*

Méd. T. 1. p. 193. Paris, 1779. ||| Const. Epid. 1700.
Vratislav. p. 334. Juncker, Tab. lxxv. in Progn. n. 12. Ga-
steller, Essay sur la Fiev. Miliar. p. 99. & 358. Allioni, l. c.
cc. 3. p. 35. Matth. Collin, Diff. de Febr. Mil. p. 27. §§ L. c.
§ 214.

388. The appearance of the febrile miliary disease is so variable, that those authors who have delivered the description of it have been obliged to divide it into certain heads. Hamilton has constituted two of them, namely, the *simple* and *complex*; and he does not consider any other as the miliary eruption, excepting that which produces the white spots. For he called the red eruption, not *miliary*, but *papillary*, and separated from it the miliary or vesicular fever, which he names so if the pustules be solitary. But if they are conjoined with the white ones, he then establishes the *compound* or *complex* species of the complaint. By which division he seems to reject the common and old distinction of the eruption into *red* and *white*; though both frequently occur distinct in the miliary disease, and may be both benign, malignant, and dangerous, as the experience of many physicians has demonstrated, and all the latitude of the disease is not comprehended by it, contrary to what he supposed. Add to this, that some subdivide them into *white* and *pellucid*; but it is to be observed, as Gmelin remarks*, that the *pellucid* spots are apt, by growing ripe, to become *white* and *opaque*, and that

the red ones gradually discover a pellucid vesicle upon their top, and sometimes also become almost completely *pellucid*, or *white*. Gerik has divided the miliary disease into *idiopathic*, essential, or primary, *symptomatic*, or secondary, and into *complex*, or that which is combined with another disease. But neither can this division properly comprehend all the distinctions of the disease, as will appear hereafter. Moreover, the symptomatic kind, although it is not intirely excluded by us, appears so rare or uncertain, that by many it is not admitted at all, particularly Collin †, Tissot ‡, Beretta ||, and others. Lastly, Allioni, who did not approve of the divisions of others, chose to distinguish it into *most simple*, *simple*, and *complicated*, or *complex*; granting, however, that the limits of each cannot be easily determined, on account of the one readily passing into the other, and the frequent combination with other complaints, together with many other concurring causes §. But others have established various other distinctions, derived from the mildness or malignity of the disease, from its manifest or disguised appearance, or from its simplicity, or combination with other complaints. For although it is the very same disease, according to the variety of the quantity or badness of its fomes, or the disposition of the body; according to the patient's temperament, habit, age, and sex, the time of the year, the country, and the prevailing

epidemic, or stationary disease, and its being combined with others; and according to the diversity of the predisposing causes, it is so altered, assumes such new and unusual symptoms, raging sometimes with more, sometimes with less violence, that it seems to differ very widely, and therefore appears at one time as a benign complaint, at another as a malignant one, sometimes regular, sometimes anomalous, sometimes secret and disguised, at other times complicated ¶, or pure, and so forth.

* § 11. † L. c. ‡ *Lettre a Mr Hirtzel.* || *Diff. de Miliar. Nat. Differ. et Cur.* § L. c. 3.

¶ No one surely can deny that the miliary disease is combined with other complaints; for it is a certain fact, that sporadic diseases (as I have more than once mentioned, and think it necessary to repeat here) always borrow, or assume, something from the prevailing epidemic, or stationary disease; and, likewise, that epidemic and stationary diseases vary somewhat according to the time of the year, and changes of the weather. Hence, when the miliary eruption prevails, it is frequently combined with gastric, catarrhal, slow nervous, inflammatory, intermitting fevers, and other intercurrent diseases; and is then named *complicated*. But, according to the season of the year, and vicissitudes of the weather, it is very apt to assume gastric, catarrhal, bilious, and inflammatory symptoms, &c. Hence arise very minute distinctions and anomalies, which it is the business of the physician to distinguish properly.

389. It is necessary, therefore, to give its general description, that its particular may appear the better. And since in it, as in the other ex-

anthemata, three distinct stages are particularised, namely, the *apparatus*, *eruption*, and *exsiccation*, we must consider them in their proper order. But if any person thinks it necessary to add a *fourth stage*, namely, that of the *suppuration*, or *maturation*, which holds an intermediate rank between the *eruption* and *exsiccation*, as in small-pox generally takes place, in doing so he will by no means deviate from nature, nor shew too great refinement. But the disease commences either all at once, and with scarcely any preceding symptom of bad health, or with some previous indication of approaching illness. When it comes on in the second manner, it is preceded for some days by lassitude, pains, and an unusual sensation as if the limbs were broken, excessive heat, watching, or disturbed sleep, or, on the contrary, a great propensity to sleep, heaviness, or pain of the head, some oppression at the chest, sometimes diminished appetite, and frequently a great tendency to sweating*.

* Damilani, l. c. p. 14.

390. After two, three, or four days being spent in this doubtful state of health, the fever commences, generally beginning with cold and shivering, or at least with chilliness of the feet and hands. The cold, or shivering, is followed by heat, of various degrees, generally ardent and acrid, sometimes mild, according to the temperament, habit, age, and the country where the

disease prevails, together with the season of the year, the degree of plethora present, and the bad condition of the fluids, the diathesis of the blood, and other circumstances. The fever itself generally varies very much, as I have already remarked (386.), which almost all writers take notice of. In general, however, it is not very great, as far as the pulse indicates; nor does it oppress the patient much. Frequently after twenty or thirty hours, a sweat coming on, it remits, and puts on the appearance of an ephemera, but is very apt to deceive the incautious with false hopes; for in a short time after, particularly in the afternoon and evening, it returns, accompanied with slight or great shivering, or more intense heat, and the sweat becomes almost perpetual, more copious, however, during the remissions, at first inodorous, afterwards fetid, having a peculiar, and, as it were, corrupted acid smell. For it seldom happens that such a sweat is not present. But the accessions and remissions are repeated in such a manner as to resemble the type, sometimes of a simple, at other times of a double, continued quotidian or tertian; nay, sometimes the remissions attain, or seem to arrive at a complete apyrexia, being at the same time accompanied with saffron-coloured, thick, or lateritious urine, increasing the suspicion of the presence of intermitting fever, or that of the *febris periodica extensa*, or *subintrans*: but it short-

ly is changed into a thin, citron-coloured, or colourless, and copious fluid. In which case the physician has recourse to the peruvian bark in vain. In most instances, shiverings, or cold and heat, alternate with each other, especially whenever the patient moves himself, or uncovers any part of the body. But it happens in some so irregularly and frequently, that Barald has sometimes observed them return twelve times in a day*. But the skin becomes so sensible, that it receives a shock every time it is exposed to the contact of the surrounding air. Hence the patients carefully cover themselves all over, to prevent their being affected with shivering and cold. In other cases, shivering or cold is not present, but a kind of heat or vapour, ascending from the inferior to the superior parts of the body, in which case the face occasionally becomes flushed, so that the patients eagerly desire the admission of the cool air. Unskilful physicians rashly consider these, and similar changes, as hysterical or hypochondriacal affections. But their blunder is easily detected by the continuance of the fever, by the fetid and acid smelling sweats, and the like †.

* *Storia d'una constit. endemico-epidemic. di febbri miliary.* Modena, 1781, p. 18.

† Damilani, l. c. p. 23.

391. Sometimes the fever, which appears very mild, and affects the pulse little, is of a crafty

and deceptive nature ; for it continues so until the eruption takes place, when it throws aside its assumed benignity, and dangerous symptoms arising, it betrays severity, danger, and malignity. But sometimes the patient has a presentiment of the danger and change which is about to take place ; for while others remain perfectly easy, from the mildness of the appearance of the disease, he alone is anxious and fearful of the worst, probably in consequence of the miliary effumes having at length affected, and secretly deranged, the sensorium commune, and the origin of the nerves. Those patients in whose *primæ viæ* there is a putrid or bilious colluvies, betray the manifest marks of it ; for they are sick, vomit frequently, and their tongue, at the beginning, is either white, and covered with mucus, or yellow, and foul ; they sometimes throw up a bitter, bilious, or viscid, corrupted or acid matter, vitiated in various ways. Not unfrequently they are attacked with a looseness of the same kind, nay, sometimes accompanied with griping, and dysentery. Then, I suppose, what Barald observed as an almost uniform symptom in his patients *, takes place, I mean their aversion to every kind of drink, until the greatest part of the indigestible matter has been dispelled. It may be observed, however, that sometimes the vomiting, or hiccup, or both, independently of any dyspeptic symptom, are

excited by whatever is taken into the stomach, or that a looseness is produced, and tension, and a tympanitic swelling of the belly takes place. But it is highly probable, that it then depends principally on irritation of the nerves, or on the miliary fomes flowing to the stomach and intestines.

* L. c. p. 6.

392. I have already said, that the heat varies, for some are not very warm, while others are parched both internally and externally. In some there is a headach, or at least a heaviness and dull sensation is felt in it; in others the head remains almost unaffected. Some are languid and debilitated to the last degree, and are apt to be frequently affected with slight fainting; others retain their strength, and seem as in good health. Almost all of them are distressed with oppression of the chest, accompanied with a sense of constriction, or weight, as it were, in the sternum, particularly in the left side of the thorax; whence it happens, that they are forced to heave deep sighs, and to breathe irregularly. But these symptoms are generally more severe and manifest than in the petechiæ and other eruptive complaints. Moreover, during the paroxysms, the oppression, anxiety, pains of the joints, and spasms, are aggravated. When the patients compose themselves to rest, and, with their eyes shut, sleep is stealing on them, they all of a sud-

then start up in terror, or are seized with sudden restlessness, or their imagination is haunted with spectres; or the dyspnœa, or cough, come on. The cough, however, is generally slight; though sometimes so fierce, dry, and frequent, when the patient is not asleep, that it amounts to a *convulsive* one, or *pertussis*, occasioned by the acrid miliary miasma irritating the larynx and lungs. Others are affected with an almost constant comatose sleep, by which they are rendered, as it were, stupid, and, if they are advanced in life, like people in a state of apoplexy. Both those who remain awake at night, and such as are affected with the comatose sleep, generally speak incoherently, and are troubled with alarming dreams. In most cases, when the hands and tongue are thrown out, they are tremulous; and the fingers, legs, and feet, become affected with cramp, or a kind of numbness. In the mean time the pulse is liable to very great changes; it is one time quicker, at another slower; sometimes greater, and more raised; sometimes less and depressed; but in all cases it is particularly changeable, irregular, and sometimes intermitting. But it is observed by Gasteller to intermit regularly after nine, eleven, or sixteen pulsations, and is said to be so from the beginning †. In a great many it is small, weak, or contracted, but resists the feel, and is at times somewhat hard; on the other hand, it is great, strong, sometimes soft and lax, sometimes hard and tense.

But in all, if attentively examined, it occasionally manifests something convulsive. Many are affected with intense thirst, although the tongue looks well, and is moist; and this is said to happen particularly in those patients who are covered with the red pustules. Others, although they be thirsty, receive injury from drinking, and therefore refuse it; which is of most frequent occurrence when the stomach is oppressed with a bilious or putrid colluvies, as I have already observed. Sometimes there is no thirst present, especially in those who are affected with the watery, lymphatic, or crystalline vesicles, as Barailon has observed †. The appetite is seldom gone; but if the patients indulge it too much, they occasion worse paroxysms, and have reason to repent of their imprudence.

* Gasteller, l. c. † L. c. p. 83. 84. ‡ *Mém. de la Soc. Roy. de Méd.* T. 1. p. 193. a Paris, 1779.

393. But as the eruption is about to appear, the fever becomes more violent, and all the symptoms are aggravated, so that generally the night preceding the eruption is more severe and troublesome. For the anxiety, heat, oppression at the chest, the alienation of mind, restlessness, tossing, spasms, or comatose sleep, increase, and the dejection and dread of dissolution, if they were not present before, then manifest themselves. Sometimes, also, convulsions, as in the small-pox, come on, announcing the approach of the erup-

ion. During the sweating, very frequently an uneasy itching, and prickings, are felt all over the skin. In some patients, when the eruption is approaching, the belly becomes more or less swelled and tense *. Sometimes the fauces are painful and red, and the apex or sides of the tongue are covered with small pustules, or aphthæ. The face at times becomes somewhat swelled and red; nor do the eyes remain free from the redness. For some of the miliary miasma passes into them; nay, it is supposed by some to proceed also to the more internal parts of the system.

* Barailon, l. c.

394. The period of the eruption is extremely uncertain; for it sometimes appears at one time, sometimes at another. It has sometimes been seen to appear on the second or third day, nay, even on the first; at other times not till the fourteenth, or sixteenth *. In the epidemic which prevailed at Corregio in the year 1782, the spots did not appear till after the eleventh or thirteenth day, or when the eruption was of a difficult kind, or the disease had been neglected, the twenty-first day †, and sometimes even later. I myself have seen some patients in whom they were very long of appearing, namely, not till the twenty-seventh, or thirty-fourth day. And instances are recorded of the eruption having been protracted for five or six weeks ‡. Hamilton supposes that the period of the eruption should

be considered as being about the fourteenth day, not from the time when the fever appeared, but from the time of the patient's first illness, which generally happens on the seventh day from the commencement of the fever || ; in other cases the eruption seems to happen between the eighth and twelfth day §. The most usual period of the eruption is the third or fourth day, and more rarely the seventh, when the disease proceeds regularly ; and it takes place first on the neck and breast, sometimes on the arms, wrists, and between the fingers : next on the back, belly, and rest of the body ; and very seldom on the face ; sometimes on the thighs and legs, or over the trunk of the body only ¶. Generally they break out on the upper parts of the body, and appear in succession on the lower extremities ; although they have been found sometimes to appear in an inverted order. If a perfect separation of the morbid matter takes place at once, it is generally completed within twenty-four hours, or less. But if it takes place imperfectly, and the whole fomes is not secreted at one eruption, on the former pustules drying, the fever and the other symptoms suddenly return, and an eruption takes place, sometimes in one, sometimes in another part of the body ; and this is repeated twice, thrice, or four times, and occasionally oftener, nearly in the same manner, but always attended with fewer symptoms. It happens also, that some pustules appear spar-

y, and come out with difficulty, and immediately disappear, in consequence of which the affections of the internal viscera and nervous system are increased, the force of the morbid matter being turned to the internal parts of the system **.

* Barail. l. c. † Barald. l. c. p. 6. ‡ L. c. c. 2. p. 50.

|| Damilani supposes that the skin at first is always denser, and that its vessels and pores are more contracted than towards the end of the disease. Hence he seems to derive the cause of the eruption taking place more slowly and favourably. But I do not know how true this may be in those patients who at the very beginning, and for some days before the eruption takes place, are as it were bathed in their own sweat. Whether in these patients are the skin and its pores in a state of stricture or laxity?

§ Barail. l. c. ¶ Juncker, Tab. 75. § 3. Vogel, l. c. § 136. Allion. l. c. c. 4. § 74.

** In general the miliary eruption is retarded or imperfect of its own accord. Sometimes, however, it is retarded in consequence of cold and dryness of the skin, the excessive use of refrigerants, frequently repeated purging, immoderate bleeding, &c.

395. The duration of the efflorescence, like the time of its appearance, varies according to the quantity and nature of the matter, as well as the patient's temperament, the season of the year, and other circumstances. In general the pustules increase and ripen in the manner already shewn (387.), after which they burst, dry, and lastly terminate in scales, or fine powder like flour,

frequently attended with great itching. Sometimes the epidermis falls off in great crusts. But the exsiccation generally takes place on the seventh, ninth, tenth, eleventh *, or the eighteenth day, namely, when the miliary fomes is present in great quantity, or on the twentieth, or twenty-first day, or somewhat, or even much, later †, according as the eruption itself has taken place sooner or later. But after the eruption, if nature has forced all the matter to the surface, and the other fluids remain uncontaminated, not only does the fever quickly abate, the pulse dilate and become soft, and the symptoms depart, but also, in consequence of a bland sweat being kept up, or copious and critical urine, or at least copious, frequent, and not intirely watery urine being discharged, or in consequence of both kinds of evacuations, the disease, together with the fever, gradually terminates, and all the functions of the body are restored to their former healthy condition. If the eruption, however, takes place imperfectly, and all the virus is not separated, and has assimilated part of the blood to itself, whether that happens from the fault of nature, or the patient, or physician, or in consequence of the thickness and resistance of the skin, the fever is aggravated, the sweats which flowed formerly are suppressed; the whole skin becomes dry; delirium, subsultus tendinum, difficult respiration, anxiety, and convulsions, supervene, or, if they are already pre-

ment, are so much increased, that in general death speedily follows. Similar consequences take place if the eruption, which has already broke out, subsides, or strikes in, in consequence either of external heat, or the admission of cold, or the erect posture, or some passion of the mind, especially rage, terror, melancholy news, or any other cause; unless some remarkable evacuation, such as a copious sweat, or looseness, or the eruption's speedy re-appearance, brings assistance, and averts the danger. But the morbid fluid, when it is either not properly forced to the skin, or is made to retire by the above-mentioned causes, occasions various symptoms, according to the diversity of the viscera to which it is transferred. When carried to the head it induces delirium, comatose affections, apoplexy, and convulsions; to the lungs, oppression and fatal suffocation; to the chylopoietic viscera, cardialgia, violent vomiting, hiccup, and colliquative diarrhœas, unless it is quickly recalled; to the cellular texture, it stagnates in its reticular vessels and cells, ferments, as it were, with the other fluids, and, lastly, becomes putrid. In all such cases the breasts of puerperal women become flaccid, the secretion of milk ceases, the lochial discharge is stopped, and the tympanitic swelling of the belly comes on †. Sometimes all these symptoms happen, although a very copious, and almost confluent eruption, takes place, and the spots are very prominent, in-

ſomuch that their ſtriking in can never be apprehended. Then in particular the fever continues not only without any intermiſſion, but even increaſes in violence, attended with a great, ſtrong, and very frequent pulse, a ſwelled face, ſhining eyes, and mental derangement, the forerunner of which is frequently ſudden melancholy, and ſudden fear without an evident cauſe, under the influence of which the patient repeatedly enters extreme ſunction: and it is proper to gratify his deſire, for he generally dies delirious and convulſed within a few hours, as I myſelf, and others, have frequently obſerved. For ſuch is the quantity of the miliary matter, that the ſkin cannot receive it all, or its nature is ſo bad and malignant, that it aſſimilates almoſt all the fluids to itſelf, and according as the brain, lungs, heart, or other internal viſcera, are attacked, the animal and vital, or natural functions, or all together, are injured, or deſtroyed. It alſo ſometimes happens, that neither the fever nor ſymptoms are at all diminifhed, but remain nearly in the ſame ſtate after the eruption, or are partly diminifhed, partly aggravated, and thus the termination is doubtful, until nature in the ſtruggle either proves victorious, or is overcome. And this is the intermediate ſtate between each, to which I have already alluded.

* Vogel, l. c. Hamilton, l. c. † *Id. ib.* ‡ Chambon de Montaux, *Malad. des Femm.* vol. i. c. viii.

396. Such is the uſual appearance and pro-

gress of the miliary fever. But many causes, both internal and external, and accidental combinations, occasion no small variation in it. For in some the belly is bound, in others it is loose. Those patients in whom it is loose, frequently have watery, yellow, bloody, dysenteric stools, and they sometimes contain worms. Besides the acid smelling sweats, some also are troubled with acid eructations *. Sometimes, although rarely, most severe otalgia, very acute headache, phrenitis, convulsive asthma, epileptic fits, and a copious ptyalism, oppress the patients †. But generally the ptyalism supervenes in those patients in whom the tongue and fauces are severely affected with aphthæ, as I have more than once had an opportunity of seeing. Sometimes hemorrhages, particularly from the nose, supervene in this disease. Gasteller and Barailon scarcely ever observed a hemorrhage from the nose take place ‡, though others had frequently done so. Nor does the disease being endemic, or epidemic, occasion a small variation ||; but in the sporadic complaint, the peculiar nature of the patient, the time of year, and the stationary, or epidemic, diseases which prevail, cause a similar difference. For it is well known, that sporadic, or intercurrent diseases, always borrow something from the stationary and epidemic ones, which causes some variation

in the complaint. Hence it is not surprising if, on account of the catarrhal, gastric, or inflammatory affections associated with it, it has been judged that the miliary disease is a catarrhal, rheumatic, bilious, or inflammatory fever §. Likewise the time of the year occasions some difference, so that, according to the season, it assumes different symptoms, and frequently requires a different method of cure.

* Barailon, l. c. † *Id. ib.* ‡ It is said to have been endemic at Turin, and almost over the whole of Piedmont, at Mantua, at Pavia, as also in Mons Arguus, in Picardy, and in general in damp and marshy situations. Felix Astius, celebrated for many excellent medical works, and a writer of very extensive experience, in *Annus medicus tertius Mantuanus*, p. 83. remarks, that the miliary disease, which was formerly almost epidemic and contagious at Mantua, is now of very rare occurrence there, and almost sporadic. But it is so well known, that it frequently prevails epidemically, that no person in his senses can deny it; for, were it necessary, I could produce a long list of epidemics, in which the miliary eruption, almost at all times, but particularly of late, has been observed and described. || Barald, l. c. Damilani, l. c. § Hoffm. *Med. Rat. Syst.* T. iv. sect. i. c. 9. Barald, l. c. Agostini, *Osservaz. med. prat. intern. alle febbri migliari popolarmente*, &c. Novara, 1755.

397. Moreover, the miliary disease is sometimes propagated by contagion. I know very well that this is questioned by some, nay, that certain late writers altogether deny it, insomuch that Sagar*, with some nosologists, has referred it to the exanthematic diseases which are not communicated by contagion. But if due attention is paid to

the manner in which it arose at Liepsick and Turin, and was afterwards diffused by the arrival of infected strangers in the other states, as we learn from Welsch, Fantonus, and Allioni, it will appear that it is not less contagious than the small-pox itself, especially when the complaint is advanced, and spreads its poisonous and putrid exhalations in all directions, and attacks a person prepared for the reception and retention of the virus. The miliary eruption observed at Corregio, in the year 1776, readily passed from the patient into the bodies of people in health, as we are told by Barald †, who besides records two instances of the miliary disease being communicated by contagion, and combined with phthisis pulmonalis, which are almost solitary ‡. Allioni does not hesitate to assert, that this disease was frequently communicated by the air. He says: “ Accurate observation has shewn, that its contagious effluvia were carried to other parts, not merely by the air, but by persons who had contracted the poison in the places where the disease prevailed ||.” But omitting the numerous testimonies of others, by which the contagious nature of this disease might be demonstrated, I shall adduce three remarkable cases, which, if I mistake not, are sufficient to put the matter beyond dispute. The miliary eruption prevailed epidemically in the town of Fano. My friend Dallarmini,—a physician of distinguished skill and

learning, whose death is still lamented by the inhabitants of the town,—one day, when visiting a friend of his own, who was affected with the complaint, observing the domestics wiping off the sweat negligently, lent his assistance, regardless of imbibing the noxious halitus proceeding from all parts of the patient's body. But shortly after he felt himself so affected by it, that he declared to the bystanders, that to a certainty he had caught the complaint by contagion. Afterwards, on returning home, he first felt himself grow slightly unwell, and next became really ill, and, being seized with the complaint in a most malignant form, lost his life a few days after. Nearly in the same manner, Franc. Raffi, of Fayence, caught the contagion in the monastery of St. Benedictus in Mantua, from a patient, near whom he had continued too long sitting, and that person, who had rescued his patient from the jaws of death, could not himself escape, as I have learnt from his father and brothers, to whom all manner of credit is due. I lately saw another physician affected with the miliary disease, though of a mild kind, who, while in perfect health, had been attacked with it, in consequence of too narrowly inspecting the eruption on the breast of a woman to whom he had been called. An observation of Barald lately quoted is very much in point §. A young man, a patient of his, who had attended closely to his father, while

labouring under the miliary eruption of which he died, a few days after his death, was attacked with a slight fever, which in a day or two left him. Barald accidentally meeting the young man, whom he had left perfectly recovered, perceived him covered with a crowded eruption of pustules, perfectly like those which had appeared on the skin of his father.

* *Syst. morb. symp.* † L. c. p. 2. 3. ‡ *Ib.* p. 54.

|| L. c. p. 78. § 162. *in not.* 5. and p. 29. § 58. § L. c. p. 73.

398. Likewise the miliary eruption, which prevailed at Novare in the year 1755, described by Antonius De Augustinis, is said to have been sometimes propagated by contagion*. And, as Barald remarks†, it is nothing uncommon for the miliary pustules to appear in a person, without being accompanied with any other concurrence of symptoms, in the same manner as small-pox attacks mothers, and other people who attend infected children, and sometimes carry them in their arms, although they have already experienced the complaint. This fact is confirmed by the testimony of Allioni, in the following passage: “A lady of distinction, in consequence of paying very close attention to her daughter, while labouring under the disease, and rubbing her with her own hands, was affected with an efflorescence on the hands and arms, attended with no inconvenience: on this efflorescence,

after continuing for some time, suddenly disappearing, she was shortly after affected with the same disease ‡." Nor do I consider it as less probable, in the same manner as the variolous fever takes place without small-pox, that the miliary fever sometimes occurs without miliary pustules. For I have more than once observed a fever, especially when the miliary eruption prevailed epidemically, which exhibited all, or most, of the marks of the miliary disease, except the eruption. The miliary virus seems then to pass readily through the cutaneous vessels, under the appearance of sweat, or vapour. But unless a complete crisis of the miliary fever takes place, or if the convalescents expose themselves to the air too soon, or the perspiration and other excretions are neglected, or suppressed, or if they indulge improperly in too rich living, they are apt to relapse into the complaint, which sometimes then proves fatal. Some, in consequence of the remains of the disease being retained, fall into chronic affections. Sometimes the cough remains obstinately, and occasionally terminates in a spitting of blood, and consumption. Others are attacked with hydrothorax, or anasarca, and with leucophlegmatic, or œdematous swellings. In others slight fevers supervene, which prove tedious, consumption, swellings, wasting, furunculi, abscesses, arthritic pains, swelling of the breasts in puerperal women, and an immoderate

flow of the urine and lochia ; impaired memory, hypochondriacal and hysterical passions, slow wasting of the body, attended with anorexia ||, and other chronic and obstinate diseases. I knew a young man, who, after escaping from the miliary disease, was first affected with mental becillity, amounting almost to fatuity, and afterwards with melancholy delirium, which continued long and obstinately.

* L. c. † L. c. ‡ L. c. p. 78. *in note.* || Vogel,
J. c. § 140.

DIAGNOSIS.

399. ALTHOUGH every person must perceive, from the history of the disease hitherto delivered, that the miliary eruption is easily recognised, especially after the appearance of the pustules ; before the eruption, namely, in the first days of the disease, not a few physicians assert, that the diagnosis is scarce possible, or at least very uncertain and fallacious, especially when the disease is anomalous, disguised, or complex. But if the physician pays careful attention to all the preceding and concomitant symptoms, he will be able, from a concurrence of symptoms, both of a general and particular kind, to draw a conclusion, without the imputation of rashness, concerning the future appearance of the miliary disease. These symptoms in general are, the preceding pains, of which I have already spoken *, frequent shiverings on the

first days, a copious discharge of sweat breaking out at first, which does not prove critical, often clammy, oily, and having a peculiar acid and corrupted smell †,—which Damilani looks upon as the principal and surest symptom ‡,—oppression of the breast, with a sense of constriction at the sternum, and chiefly at the left side of the thorax ||, more or less uneasy, and generally more intense than in any other exanthematic disease, forcing the patients every now and then to sigh and complain §; the greatest restlessness, with constant watching, anxiety, difficult and irregular respiration, and lowness of spirits; the perplexity of the patient, hesitating about what the disease, although it generally appears slight, may turn out to be ¶; the fever at first being either small, or variable, attended sometimes with delirium, trembling of the hands, and subfultus tendinum **, loss of strength without a manifest cause ††; a variable, convulsive, but generally quick and weak pulse ‡‡; sleeping of the hands, fingers, legs, and feet, more or less sensible when it is present,—for it is not always present |||,—or, in place of it, cramps, as they are called; uneasy pricking on the skin; dry cough, when it is present, sometimes slight, sometimes violent; pain or heat of the throat; difficult, or at least inconvenient deglutition; when the patients compose themselves to rest, their being apt to awake out of it, with trembling and fear, and

starting of almost the whole body, as Hamilton probably was the first to observe §§, and as I myself have frequently observed since. But if to these is added the prevailing epidemy, or the suspicion of the contagion having been received, our conjecture concerning the miliary disease being about to take place, will be rendered the more probable. I have already observed, from Gasteller, that the pulse at the beginning intermits, every ninth, eleventh, or sixteenth stroke. Gasteller considers this intermission as of such consequence, that he does not hesitate to affirm, that from it to a certainty may be foretold the appearance of the miliary eruption ¶¶. But it is by no means necessary for the whole of these symptoms to concur, it being sufficient that the most of them, and such as more particularly belong to the disease, are conjoined together. Such, therefore, are the marks by which the miliary eruption may be foreseen, or at least by which that species of the complaint may be recognised, which I have already mentioned takes place without being accompanied with the miliary pustules. But when the eruption actually takes place, no longer can a shadow of doubt be entertained upon the subject.

* Hamilton, *De Febr. Miliar.* c. 2. p. 49. 50.

† Barald (l. c. p. 73.) names the peculiar smell of this sweat, if it were in a state of corruption, *dysodia*, and affirms that it is never so uniformly found in that state in the malignant, or putrid fevers, as it is in the miliary disease.

‡ L. c. p. 14. & 65. in note *c*, where he says, if this symptom were wanting, although all the others were present, that there was no reason to apprehend the approach of the military eruption; and that, though all the others were wanting, the presence of it alone gave reason for apprehending the military eruption.

|| Gasteller, l. c. § Damilani, l. c. p. 14. 15. ¶ *Id. ib.*
 ** Vogel, l. c. § 137. †† Hamilton, l. c. ‡‡ *Id. ib.* ||| Al-
 lion, l. c. Damilani, l. c. p. 14. §§ L. c. ¶¶ L. c. p. 83. 84.

400. The disease is known to be of a benign kind, from the absence of the severe symptoms, and the general marks of malignity*; from the moderate fever; from an easy and complete eruption of the pustules; and, after it has taken place, from the ceasing of the fever and all its symptoms, or at least from their being so much diminished, that the patient recovers within a few days. On the other hand, the malignity of the disease is recognised from the crafty nature of the fever, and loss of strength, although, in the case of a malignant and fatal complaint, I have known the patients to retain their strength sufficiently; from an imperfect and difficult, or uncertain and fleeting eruption, and chiefly, after the eruption has taken place, from the unexpected aggravation of the fever and all its symptoms, and from the dryness† of the skin, which was formerly wet with copious moisture‡. Hence it follows, that of all kinds of the complaint that ought to be considered as the mildest which is unaccompanied with fever, or at least has a very

light one, while most of the functions of the body remain in their healthy state. A regular disease is denoted by the eruption taking place at the common period, and not exceeding the usual bounds; by the increase, maturation, and exsiccation of the pustules being neither hastened, nor protracted, and not continuing too long; in a word, by the whole appearance of the disease being unaccompanied with any unusual symptom. In the anomalous, or irregular, species of the disease, the following symptoms take place. The disease deviates somewhat from its usual course, or assumes unusual and foreign symptoms. The eruption takes place imperfectly, partially, and at separate intervals; and each eruption is always preceded by one or two more violent attacks of fever, accompanied with tremors, thirst, heat, oppression of the breast, attended with a suffocating sensation, and slight delirium, until the whole miliary virus, after repeated efforts, is forced to the surface, which sometimes happens within four, five, or six weeks at most ||. In this case the morbid matter is not all evolved at one time, but at separate intervals. That is to say, according as some part of it is generated, or extricated from the other fluids, nature is irritated, and the fever is aggravated, and all the symptoms return, as if the harbingers of a fresh eruption; on which taking place they are again allayed, and thus fresh tumults and eruptions

come and go, until every part of the heterogeneous principle has been expelled. Barald records many instances of a slow and repeated eruption, but the most remarkable one is that of a patient in whom, after the hundred and twentieth day, a new eruption took place, accompanied with great itching, and, after returning several times, at length terminated in the desquamation of the cuticle *. It did not observe the same course in a patient of my own, in whom these symptoms took place three different times, protracting the disease for forty days. Nor did nature intirely free herself from the noxious fluid, without the remains of the disease being transferred to the os ilium, and afterwards to the large intestines; exciting in the former a dreadful pain, like an ischiatic one, in the latter a looseness, accompanied with tenesmus, by which at length both the pain and the rest of the disease were intirely resolved.

* See Chap. I. Vol. II. † *Ibid.* also Juncker, l. c. Hoffman, *Med. Rat. Syst.* l. c. Collin, l. c. Störck, l. c. Gasteller, l. c. Beretta, l. c. Barailon, l. c.

‡ In the endemico-epidemic disease observed at Corregio, Barald discovered three marks of malignity, sometimes separate, sometimes conjoined. The first was a particular *heavy pain* in the calves of the legs, which began a few days before, and continued to accompany the fever for five, or even six days, without being allayed either by sitting or lying. The second symptom was afforded by the *troublesome* or *dry cough*, which was quickly joined by another, namely, a simple phlogosis of the gums, attended with some white spots, and a red stria stretched along the margin of the *velum palati* all the way

to the *woula*, and terminating there. This phlogosis was sometimes resolved within six or seven days, sometimes it terminated in gangrenous aphthæ, which stretched to the fauces, œsophagus, palate, gums, and lips (p. 16.). But the cough in most instances continued until the appearance of the eruption, which took place very slowly. From being dry in the course of the disease it became wet, accompanied with a ropy, catarrhal expectoration, at first crude, afterwards concocted, which was owing to the congestion of the lungs, and would have certainly occasioned suffocation, unless a proper plan of cure had been employed (p. 17.). Besides these symptoms, he frequently observed a *lumbago*, which sometimes became troublesome before the accession of the disease, and continued to accompany it throughout its course (*ib.*). Lastly, he remarks, that the patients were uniformly incapable of bearing the light (*ib.*).

¶ Some probably will suppose that the *anomalous* species of the miliary eruption does not differ from that which we have named *secondary*. For in both the eruption takes place more slowly than in the regular complaint, which almost constitutes its proper character. They may therefore suppose that I have set down one or other of them superfluously, alleging either that the secondary eruption is referable to the anomalous, or *vice versa*. But there is this distinction between them, that the eruption, as being the effect of another disease, coming on at its height, or towards its termination, wants the chief symptoms by which the miliary disease is characterised, particularly such as generally precede the eruption (399.); while this is by no means the case in the anomalous complaint. I therefore hope, that on reflection they will allow that I have neither set them both down, nor separated them unnecessarily.

§ L. c. p. 54. et. seq.

401. The matter is involved in greater obscurity when the miliary disease deceives us under the appearance, or disguise, of other diseases,

when it is named *larvatus*, or *personatus*. For it not unfrequently puts on the appearance of many other diseases, by which the physician is apt to be misled. I have already mentioned (390.) that it sometimes assumes the appearance of *hysteria*, and *hypochondriasis*, or intermitting, or catarrhal and rheumatic, or inflammatory (396.), or bilious and gastric, fever. I shall now proceed to point out other diseases, whose appearance and nature it resembles so much, that it is a very difficult matter to distinguish it till the eruption actually takes place. These diseases are, pleurisy, peripneumony, angina, rheumatism, gout, apoplexy, epilepsy, nephritic colic, erysipelas of the face, and others, but more frequently those just mentioned. For in these cases the miliary fomes attacks this or that part before being carried to the surface, and, settling there, resembles the particular diseases of these parts. Hence in such cases the miliary disease is properly named *larvatus*, or *personatus*, because the affections, the appearance of which it assumes, intirely depend on the very same cause; while the *complicated* species is really conjoined with another disease having another cause, as shall be shewn hereafter. Delisle adduces examples of the miliary disease*, which occurred disguised under the appearance of profound coma, attended with delirium and tinnitus aurium. In the monastery of St Lazarus, at Milan, one of the nuns, named Bellinia,

was attacked with the complaint, attended with constant delirium, almost perpetual cynical spasm and risus sardonius, together with loss of strength. The eruption only took place about the fourteenth day, and afforded such relief to all the symptoms, that hopes of a recovery were entertained; but after the seventeenth day she died convulsed, in consequence of a metastasis having taken place. Hamilton also records a case of the miliary eruption which set out with the appearance of a furious delirium †. Another case is related by him of a particular miliary fever, which first put on the appearance of a hysterical affection, next that of convulsions, and lastly resembled an obstinate and very remarkable syncope, or asphyxia ‡; as also a third, in which a palsy of the lower extremities continued almost to the termination of the disease ||. The same author has likewise given us an instance of the miliary disease commencing with apoplexy §. And attentive observers will easily find instances of its resembling angina. One well deserving of notice may be seen in the elegant Dissertation of Beretta, already quoted ¶. But pleurifies and peripneumonies, which conceal the miliary eruption, are of still more frequent occurrence, and are generally successfully resolved by the eruption of pustules occurring. I have elsewhere adduced the history of pleuripneumonia concealing the miliary eruption, which

was at length manifested on the seventh day by the efflorescence of the pustules **.

* L. c. † L. c. p. 147. ‡ *Ib.* p. 113. || *Id. ib.*
p. 90. § p. 83. ¶ *Diff. Cit.* p. 51. in note. ** *Sagg.*
di Med. Prat. Dall' Armi, P. 2. p. 137.

402. But it is of great moment in proper time to recognise the disguised miliary disease, such as I have exhibited it (401.), before it betrays itself by the actual eruption. For it generally distresses the patient for several days, and keeps the physician in suspense, before the efflorescence appears, and the veil is removed. But this is the difficulty. The result of long experience, and a careful examination of all the phenomena, has taught me in the first place, that the disease under which the miliary one is concealed is always attended with some extraneous symptom, foreign to its real nature, when it is solitary and genuine; while, on the other hand, generally some symptom is wanting, which is otherwise peculiar, as it were, to it, or, at least, of very frequent occurrence in it; lastly, that the remedies, which in other cases afford some relief, do not produce their effects, and, contrary to what usually happens, are of little or no service. Meanwhile the proper marks of the disguised miliary eruption are not absent, namely, the profuse and constant sweats, affording no relief, and having an acid or fetid smell, the oppression of the breast, causing sighing and complaining, the laborious, irregu-

har respiration, the sleeping of the limbs, cramps, and nervous affections, frequently resembling hysterical or hypochondriacal ones, languor, fainting, a variable pulse, generally contracted and irregular, disturbed sleep, and the other symptoms already enumerated (389.). Add to this, that in almost diseases, not to say the miliary fever, the symptoms on the first days of the complaint generally appear milder, gradually increase, and attain their height; while, in the disguised species, at the very beginning they appear violent, severe, and dangerous, and attack the patient as it were suddenly, and do not abate before the pustules break out. For it is only then that all the symptoms, together with the disease, under the appearance of which the miliary fever lurked, are diminished, and cease, while the eruption nevertheless performs its usual course; excepting when it is imperfect, or too slow, and the disease, which the miliary one resembles, has taken deep root, and passed into an *essential* one; for in that case it likewise holds on, and, even when the eruption takes place, does not cease.

403. Let us illustrate this by some example. Suppose the disease to assume the appearance of pleurisy. The pungent pain of the side, the cough, the expectoration being tinged with blood, the difficult respiration, and acute fever, will denote the presence of the pleurisy; but the great-

ness and uniform hardness of the pulse will be wanting, or not so great, as in real pleurisy; the blood drawn at first will either be without the pleuritic coat, or it will not be very coherent, or it will have a lax crassamentum, or will abound with serum, or appear shining and crimson coloured; nor will that relief be obtained which bleeding otherwise usually brings, at least for a few hours. The pleuritic pain will frequently shift its situation, and waver*, and the expectoration, from being red, will become yellow, or pale, or livid. Or if the pain remains fixed and acute, as sometimes happens, neither the fever nor pulse will correspond with it. But if, also, vomiting, or nausea, or unusual and constant restlessness, without any evident cause, and not referable to the severity of the pain, harass the patient, or the heat exceeds the pulsation of the arteries; if the thirst is less urgent than the degree of the heat would give reason to expect; if the tongue is covered with a white or yellow mucus; if the patient is distressed with the most obstinate watching, which cannot be derived from the pain; if spasmodic affections of the belly, resembling hysteria, or hypochondriasis, borborygmi, languor, fainting, anxiety, and premature sweats, without being attended with any relief, are combined together; it then appears that another kind of complaint, to which these symptoms are peculiar, is lurking under the mask

of pleurisy. The twenty-ninth observation of Dallarmi, together with another of mine set down in the additamenta, if consulted, will afford some assistance to students, and those whose own observations are not of sufficient extent to guide their practice †.

* Allioni, l. c. c. 6. § 99:
2. p. 129.

† *Sagg. di Med. Pratic.*

404. A person of distinction, who had passed his sixtieth year, of the sanguine temperament, and a good habit, in consequence of catching cold while exercising in damp air, was seized with an acute fever, attended with difficult respiration, catarrhal expectoration, tinged with blood, excited by a slight cough, there being present at the same time debility, a great tendency to sleep, stupor, and slight mental derangement, profuse sweat, a great and strong pulse, but not very hard, and indistinct speech; and all these symptoms came on of a sudden as were, and at the very beginning of the disease. Notwithstanding of repeated bleeding, scarce any relief was obtained; the panting, deep and irregular respiration, the cough, tendency to sleep, and the stupor and insensibility, remained in the same state. The continued remitting fever repeated its paroxysms in the evening, the pulse being at first depressed, afterwards deep, full, and quick, attended with frequent

sighing, almost constant sweating, and thick urine. But in a short time, to these symptoms were added thin bilious stools, and a tympanitic swelling of the belly. Blisters were applied to the arms and legs, with some relief to the head; and cathartics and injections were administered to remove the colluvies and bile collected in the intestines, and to check the spasms arising from thence. In the mean time, while other remedies possessing a resolving and inciding property were proposed to free the lungs, towards the evening of the seventh day, the miliary pustules appeared all over the surface, which not only discovered the true nature of the disease, but removed all the symptoms of the breast, head, and belly, and mitigated the fever so much, as gradually to produce a perfect crisis; which happened on the fourteenth day.

405. Enough then of the *disguised* species of the miliary disease. I shall next proceed to the *complicated* one. There is a great resemblance between them; for in both of them the miliary eruption is combined with some other disease. Hence some have frequently confounded the *disguised* and *complicated* species, while, however, they ought to be carefully distinguished, and considered apart. But the whole difference consists in this, that the former is caused by the same miliary fomes, and the latter proceeds from a different cause; that the former, on the

miliary pustules breaking out, at once disappears almost intirely, while the latter does not, unless its cause by accident is removed at the same time, and it has fortunately performed its course. But the diseases with which the miliary eruption is most frequently combined * are, the petechiæ, small-pox, measles, scarlatina, pleurisy, and primary peripneumony, gout, arthritis, genuine intermitting fevers †, gastric fever, the *tritæophya biliosa*, perhaps also the slow remitting nervous fever, child-birth, aberration of the milk, diminution, or suppression, of the lochia, and sometimes inflammation of the uterus; nor is it inconsistent to suppose that it may be combined with any other disease. Barald ‡ twice mentions its having been combined with phthisis, but it at that time prevailed epidemically. I, however, have observed the complaint, when sporadic, supervene after a fracture of the thigh-bone. It was the summer-time, and in order to enjoy the cool night-air, Francis Gypsius, a young nobleman of Fayence, in perfect health, used to walk up and down the city. One night he struck against a large square stone, in consequence of which falling with great violence, he broke his right thigh bone. Next day he was attacked with fever, accompanied with frequent shiverings. Shortly after very copious sweats coming on, and watery and copious urine being discharged, full miliary pustules broke out upon the skin,

in great numbers, without any relief to the symptoms and fever. Nay, the sweat was suppressed, the urine became more scanty and deep coloured, delirium, convulsions, and almost sudden death supervened. The pustules still remained full of matter, and some of them, principally about the neck and breast, were filled with a whitish, purulent fluid. He was cut off, therefore, during the maturation, a few days after the commencement of the fever ||.

* Allioni, l. c. c. vi. p. 52.

† I here mean intermitting fevers, not of the spurious kind, such as the eruptive fever before the appearance of the eruption frequently resembles, as I have already remarked (386.). Nor do I mean those ones which are really intermitting fevers, but attended with the miliary eruption. For in them the miliary eruption shews itself at every accession, and, generally disappearing during the time of the apyrexia, is therefore considered really as an effect, or symptom, of the fever itself (Vol. I. par. 178.). Were it not so, it would be discussed, together with the fever, by means of the peruvian bark. By which argument, independent of others, I am chiefly induced to suppose, that the secondary, or symptomatic miliary eruption, ought not to be intirely rejected. I therefore here understand the tertian, or any other genuine intermittent, of whatever type, which by no means depends upon the miliary fomes, and does not of itself occasion the miliary eruption, but which is accidentally combined with it, and is easily removed by the bark, without the miliary disease then terminating.

‡ L. c. *ib.*

|| Damilani also names that species of the miliary disease *complicated*, which is combined with other diseases, differing in their nature. It cannot be recognised and distinguished, ex-

pting by its pathognomonic marks, which, however, as e acknowledges, do not appear at first, but only at the ight, or during the *inclination* of the disease with which the miliary eruption is combined. Hence, if I mistake not, we may infer, that this author supposes that some primary disease, s it were, precedes, which again is succeeded by, the miliary eruption. Nay, he adds, that unless the former disease is overcome, that the latter, namely, the miliary one, which is removed with the greatest difficulty, threatens a fatal event. ut, with deference to his authority, I doubt whether that disease can be called truly *complicated*. For these symptoms are wanting which usually precede and announce its future appearance, and the latent fomes lurking in the system. As the phenomena, therefore, of the miliary eruption appear only at the ight, and during the *inclination* of the other disease, which has preceded it; it appears to me more probable, that the miliary eruption, which follows, ought to be considered as an effect of the depravation of the fluids, occasioned by the former severe and dangerous complaint. But if this is the case, as I suspect it is, it follows that this eruption ought to be rather called *secondary* and *accessory*, than *complicated*; as that one is *secondary* which breaks out towards the conclusion of putrid or inflammatory diseases, or upon dead bodies, and which therefore the author names *mortua*. In fact, the disease, the history of which he has adduced in the twenty-first page, as of the *complicated miliary fever*, was nothing else, in my opinion, than the *secondary* disease. A stout young woman, of the sanguine temperament, was attacked with peripneumony, during the continuance of which she was nine times bled. When the peripneumony was drawing to a close, the miliary pustules broke out. She got intirely rid of these, and the peripneumony together, towards the end of three weeks. It appears evident, that as the miliary pustules broke out during the inclination of the former disease, without exhibiting any of their usual symptoms, as far as appears from their history, they were *secondary*, and, on account of resolving the disease favourably,

critical. He likewise mentions another instance of the *complicated miliary disease*, in a very stout young man of about twenty-seven years of age, in whom, when labouring under a pleurisy, which had attained its height, namely, about the eighth day from the beginning of the disease, a very copious miliary eruption took place. The patient did not get better in consequence, for he died in convulsions on the eleventh day (p. 22.). This species seems to have been of the *secondary* and *symptomatic* kind. But the third case, which he mentions in p. 23. was probably a *bilious pleurisy combined with the miliary disease*, because, before the eruption appeared, it threatened the breast first, next the head, and, lastly, the breast again, in various ways; which not unfrequently happens in the latent or complicated miliary miasma, and is, as it were, peculiar to it. While these observations were in the press, my very worthy friend, and learned colleague, Leopold Thonhauser, communicated to me a history of the secondary miliary disease, which arose *per epigenesin*, unless it be considered as complicated, and, which deserves more notice, *critical*. In the month of January of the year 1785, he was called to a girl of thirteen years of age, who then laboured under a fever, cough, and spitting of blood; and as he found the fever violent, the cough very troublesome, and the respiration difficult, attended with a hard, strong pulse, he proposed letting blood, which he was afterwards obliged to repeat three times; for the blood always appeared inflammatory. By repeated bleeding, antiphlogistic remedies, and pectorals, he was enabled to remove the inflammatory symptoms, although the cough, fever, and spitting of blood continued. As, therefore, an amphimerina, spitting of blood, obstinate cough, and consequent emaciation, continued to distress the patient, he concluded that the complaint had degenerated into confirmed, or ulcerous, phthisis. At length, about the beginning of the month of March, after some aggravation of the cough and fever, and greater difficulty of breathing, on a sudden the miliary eruption appeared, partly white, partly red, first on the inferior extremities, and

afterwards on the superior ones, but gradually and sparsely; until the whole skin was covered. When it began to appear, and the more the pustules increased and ripened, the cough was greatly relieved, the fever abated, the appetite, sleep, and strength returned. The eruption continued about four weeks, fresh miliary pustules succeeding, before they arrived at the exsiccation. The exsiccation was at length succeeded by an actual desquamation of the epidermis, which fell off in crusts; which went on slowly, according as the eruption had done, insomuch that it was not completed till the commencement of the month of May. After which the patient began to recover greatly, her strength, appetite, and former plumpness returning. The cough, however, although much less severe, a slow fever, and spitting of blood, though very scanty, still continued; which, however, did not prevent the patient from getting up, walking about, and applying with good spirits to her amusements and occupations, and entertaining hopes of recovering her former good health.

406. With regard to the combination of the miliary eruption with the petechiæ, I have already spoken (325.). It is found most frequently occurring in the epidemic petechiæ, less frequently in the sporadic. This complication was long since observed at Trent by Roboret*; at Verona, by Petrus A Castro†; at Fayence, by P. Salius Diversus‡, to pass over certain of the moderns§. Such a complication likewise was observed twenty-nine years ago at Lausanne, and afterwards at Mevey§. Two years afterwards¶, namely, in the year 1758, the petechiæ and miliary eruption prevailed at Vienna, sometimes separately, at other times together. Long before either of them, the complicated miliary eruption had been frequently observed by Felix Aftius at Mantua**, and

was very lately noticed by Trollius, in the epidemic which prevailed in the year 1783 ††. The miliary eruption is sometimes conjoined with the petechial one, and observed interspersed among the petechial spots, sometimes it supervenes on them when present, or succeeds to them when they disappear, or begin to go off. There are generally present symptoms of both diseases, more or less manifest, according as one or other predominates. But if the one succeeds to the other, the petechiæ generally appear, and after retiring are succeeded by the miliary pustules. Then "the urine," as Allioni remarks, "which was at first turbid and thick, becomes thin, a certain degree of *pricking numbness*, called *sleeping*, is felt; the deafness goes off; the buzzing is succeeded by tinnitus aurium; the sopor passes into watching, or *coma vigil*; the weakness goes off, the pulse rises and becomes quicker." He adds likewise, that the delirium is prodigiously increased, as soon as the *miliary miasma* reaches the skin; nay, that, if the miliary pustules supervene prematurely on the petechiæ, fatal convulsions arise; while, if it comes on later, and after a considerable interval, there are *hopes of a return of health* ††. In the epidemic which prevailed at Vienna in the year 1758, when the miliary supervened on the petechial eruption, it was preceded by slight shivering; to which were added oppression and anxiety at the chest; and lastly came on the miliary pustules,

which were white, in great abundance, and afforded relief. Those patients, in whom this eruption was not preceded by anxiety, discharged a great quantity of urine, or, if the urine was scanty, its place was supplied by a slight diarrhœa, which afforded relief |||. In the town of Belgiojoso, when the petechial disease had taken a favourable turn, the fever was suddenly aggravated, some of the symptoms were increased, and continued so for two or three days. Afterwards a favourable eruption having taken place, all the symptoms abated, and the patient gradually recovered §§. The double disease is generally attended with greater danger, or at least proves more tedious; but its favourable or unfavourable termination generally corresponds with the benignity or malignity of the eruption which supervenes. Nor is the period of the eruption's appearance attended with any uniform occurrence; for I have seen it at one time benign, when it appeared soon, at another malignant, when it appeared later; and *vice versa*.

* L. c. † L. c. ‡ L. c.

|| In the epidemic which prevailed at Wemding in the year 1689, and in Donavert, the miliary eruption was combined with the petechiæ; (*Rosin. Lentil. Miscel. Med. Prat. N. C. Dec. 3. ann. 5 and 6. append. p. 132.*); in Wratisslaw, in the year 1715, (*Godofr. Klaunning, Obs. Circ. Febr. Malign. Petech. Eph. N. C. cent. 5. obs. lxiii.*); as also in the epidemic of Wratisslaw and Silesia, which prevailed ann. 1737. *Fabr. Herd. Pauli, Histor. Febr. Catarrh. Malign. In. Act. N. C.*

- vol. vi. obf. 66. &c. § Tiffot, Lettr. a Mr Hirzel, p. 5.
 ¶ Störck, *an. med.* 1. *menf. Jul. et Aug.* ** Terzo *an.*
Medic. Mantuan. o fia Storia delle Malattie del 1783, &c. p. 83.
 Vid. *Opusc. Med. Prat.* Targion. T. 8. †† Lettr. 3.
 Targion. *Op. Med. Prat.* T. 8. p. 248. †† L. c. § 108.
 ||| *Ib.* § 109. §§ Störck, l. c. *menf. Aug.* p. 15. & 16.
 ¶¶ Trollius, l. c.

407. When the miliary eruption is combined with small-pox, measles, or scarlatina, it is not an easy thing to foresee it. But as it is generally combined with malignant small-pox, measles, and scarlatina, the malignity of these diseases may cause us to apprehend the presence of the miliary eruption, and much more certainly if the well-known disposition of the prevailing epidemy is taken into consideration. In the few cases of the small-pox and miliary complaint being combined, which were treated by Allioni*, he observed, that “a most intensely severe pain in the loins” preceded; that “the small-pox first broke out, and afterwards the miliary pustules;” that the fever on the appearance of the small-pox “did not remit, together with the soft, hardish pulse, but that the contraction and quickness of the pulse increased; that the increasing of the small-pox checked the miliary pustules; that subfultus tendinum frequently took place; that the patients, becoming delirious, with a very tense pulse, died on the sixth, or seventh day;” and that the pricking sensation, which is the principal mark of the miliary disease, was not very sensible,

may, only came and went. He mentions, moreover, from Camerari †, that when the small-pox attained the height of suppuration, white miliary pustules supervened, followed by a favourable termination. But he makes mention, from Haller ‡, of malignant small-pox which were followed by the miliary eruption. Lastly, in two cases in which the miliary eruption was combined with measles, he remarked that the inflammation of the throat and cough, which precede measles, distressed the patient much ; that the eruption of the measles took place first, attended with great heat, and that they were next succeeded by the eruption of miliary pustules in different parts ; but that the pricking numbness of the fingers, hands, and feet, occurred frequently in them, accompanied with the other symptoms of the miliary disease ; and that the disease proceeded in the same manner as the benign, or, as he calls it, the most simple species ||. It is probable, also, that the combination of scarlatina with the miliary eruption scarcely differs from the preceding one.

* L. c. c. vi. § 110. † *Ib.* § 111. *Act. N. C.* vol. ii. p. 338. ‡ *Ib. ex Opusc. Pathol.* p. 120. || L. c. § 112.

408. The miliary disease, when it is combined with pleurisy, or peripneumony, is frequently like the disguised species, insomuch that one may be easily taken for the other. But I have already shewn (402.), as far as lay in my power, in what

manner the disguised species betrays itself. I shall now point out in what manner the complicated species may be distinguished. In it the pleurisy and peripneumony exhibit all the symptoms which indicate the presence of these diseases when they are solitary ; nor do they at all recede from the peculiar combination of symptoms. Likewise the causes which induce them have preceded, and at the same time the season of the year, and state of the air, are such as favour their production ; and this will appear much more clearly, if, in the mean time, either stationary or epidemic diseases prevail, or seem occasionally to intervene. Nor on the appearance of the miliary eruption do they cease, as it has been shewn happens in the disguised species, but they go through their course as usual, in the same manner as if they were solitary, and terminate favourably or unfavourably, according to the disposition and severity of each. Which last also happens in the miliary disease combined with gout ; for then the gout is not relieved by the eruption, as happens in the disguised species, but generally performs its regular course, which is almost always of long continuance. But in its combination with the intermitting fever, besides the continued remitting fever, with which the febrile miliary disease is combined, it is usual for paroxysms to supervene, accompanied with cold or shivering, every day, or every second day, which, after passing through

their increase, height, and inclination, like true intermittents, are resolved by the usual sweats; a continued remittent remaining behind, as generally happens in the proportionatæ and hemitritæi. But they are attended with this fatal consequence, that on the accession of the cold the miliary eruption subsides, and is forced in, and, in consequence of a metastasis taking place, threatens speedy death. Allioni observed a simple tertian, in the second or third paroxysm of which the miliary pustules had appeared; but during the cold stage, when the accession returned, the eruption suddenly retiring in occasioned the patient's death *. He likewise makes mention, from the transactions of the Royal Society of Berlin †, of the *purpura alba*, combined with a quartan, which at length proved fatal, in consequence of the miliary pustules being forced in during the cold stage.

* L. c. c. vi. § 107. † Decad. II. vol. vii. p. 102.

409. When the miliary eruption is combined with the acute gastric fever (Vol. I. par. 373.), or with the bilious tritæophya (*ib.* 419.), or with ardent fever (*ib.* 422.), or with the flow malignant fever named *nervous* (*ib.* 437.), it is perfectly obvious, that the combination is distinguished by the marks of these fevers, and of the miliary disease itself (399.). It is proper, therefore, to carefully attend to the peculiar marks of these diseases. When a looseness is present, as fre-

quently happens in the gastric fever and bilious tritæophya, Allioni remarks *, that the eruption appears somewhat later ; namely, on the looseness abating, when the symptoms immediately preceding the eruption appear, on the ninth, eleventh, or fourteenth day. Perhaps this was the cause of the lingering eruption in the endemic epidemic described by Barald. For in it the miliary disease seems to have been combined with the bilious tritæophya, which he named a fever of the class of bilious ones, sometimes bilious, sometimes inflammatory ; and in all the patients the eruption appeared †, but much later ‡. It is not an uncommon occurrence for the miliary eruption to be combined with suppression of the lochia, and inflammation of the uterus, or aberration of the milk, as I have already hinted (405.). Then the fever attacks the patient immediately after birth, or on occasion of the milk-fever being uncommonly violent, and is attended with the symptoms peculiar to the miliary disease (399.). The pulse is very quick, and the lochia flow variously, or stop. The uterine region is frequently painful and tense. But while the sweats and other symptoms of the approaching eruption increase, the pain of the uterus disappears on the appearance of the miliary pustules, the termination of which, according to Allioni ||, is generally fatal. Frequently likewise the secretion of milk is scanty, or irregular, or the belly

oose, or other bad symptoms peculiar to puerperal women are present; as we shall hereafter shew, when we come to subjoin some remarks on the miliary fever of puerperal women.

* L. c. c. vi. § 113. † L. c. p. 77.

‡ For that fever, if its history is well considered, was certainly of such a kind as to appear of a gastric, or bilious, inflammatory, sometimes of a gastric, or bilious, putrid, disposition. The eruption appeared on the eleventh, or fourteenth, or twenty-first day, and sometimes was deferred to the fortieth.

|| L. c.

THE PROGNOSIS.

410. WITH regard to the prognosis, Allioni justly pronounced it to be very uncertain*, as we can place no reliance on the mild appearance of the complaint. For my part, I do not know a more deceitful disease, insomuch that when I have to treat it, I never feel myself more anxious; which every person will be apt to feel himself after several times treating patients labouring under it, or attentively perusing its history. I except, however, the species which is unaccompanied with fever (385.), as also that which is named *purpura chronica* (*ib.*). For both varieties are free from danger, if rightly treated, and if due attention be paid to the pustules, to prevent their striking in before the noxious fluid is completely dispersed. In general, therefore, the febrile species, as it is called (386.), may be pronounced to be both severe and dan-

gerous; with this difference, however, that the *benign* and *regular* species (400.) is attended with much less danger; while the *malignant* and *anomalous* kind is attended with much more, especially when it is communicated by contagion (397.). And it is highly probable, that the *disguised* (401.), or *complex* (405.), species is generally more severe and dangerous than the simple complaint, as attacking the patient with a greater number of symptoms, or as being composed of two diseases equally severe, or one or other more severe, scarce either of which alone nature would be fit to bear. And, among the more fatal combinations, is ranked the combination with the malignant small-pox, or petechiæ of a bad kind, or severe epidemic diseases †.

* L. c. c. viii. § 115. † Allioni, l. c. § 135.

411. The degree of the danger is proportioned to the severity, intensity, number, and duration of the symptoms, and importance of the parts affected. Therefore the more intense, numerous, obstinate, and lasting the symptoms are, the greater the number, and the more the importance of the parts affected are, the more dangerous is the disease. Hence those symptoms which affect the head and nerves, as delirium, convulsions, watching, headach, and subsultus tendinum, are considered as being more severe than the nausea and vomiting, indicating an affection of the *primæ viæ*; and such as affect

the breast are considered as most dangerous, and almost always fatal, if they are not relieved by a speedy and copious eruption *. Nor is it absurd, as Allioni supposes, to conclude that the greater or lesser degree of danger generally depends upon the quantity of the miliary poison ; particularly the viscidty and tenor of the fluids and lymph, by which it is held fast ; and the density, and greater or lesser irritability of the skin † ; whatever truth there may be in the opinion which he entertains, that a great many of the most severe symptoms may be derived merely from the irritation of the skin, and the spasms occasioned by it. Certainly greater effects are to be expected from its abundance than scantiness ; and probably they do not always depend on its quantity only, but also more frequently on its badness, and greater malignity. For a great abundance of the poison not only produces more derangement in the system, but is likewise separated from the other fluids with greater difficulty, and still more if they are so dense and sluggish as to retain it adhering to them more firmly. And it is undeniable, that, in consequence of the density and irritability of the skin, the exanthematic matter is either not received by it, or when forced thither is repelled by its corrugation.

* Ludwig, l. c. P. I. c. i. § 218. Gasteller, l. c. c. v. p. 91. & 95.

† L. c. § 116.

412. The time of the eruption also affords a favourable, or inauspicious, prognostic. Most people dread a speedy and premature eruption, and commend a tardy one; because the first takes place without concoction, and the latter, after going through the concoction, is favourably resolved. Among these is Allioni, who does not hesitate to affirm, that the sooner the eruption appears, the longer the disease is protracted*; and that several eruptions are necessary for carrying off the miliary matter. Damilani, also, is so much persuaded of the truth of this, that he considers it as a certain fact, that, on the whole, the later the pustules break out, the more certain are the hopes of a recovery. According to his opinion, therefore, a person has greater reason to expect a speedy recovery in whom the eruption takes place after three weeks, than one in whom, *cæteris paribus*, it occurs at the end of the second week only, and so forth †. Which assertion, though it be allowed by many, and I observe it universally admitted as a certain axiom, must not be received with implicit credit. For I have repeatedly noticed a very late eruption of pustules in the malignant and fatal miliary disease, and, on the other hand, a very early one taking place in the benign species of the complaint, which terminated favourably. It is well known likewise, that in the anomalous complaint the eruption is very late of appearing, and no less

anger is to be apprehended from that circumstance, nor is its termination less doubtful ; to say nothing of the miliary eruption, which sometimes breaks out generally previous to death, very seldom proving salutary, at the end of some diseases, particularly of putrid and malignant ones, with which they are combined, or by which they are generated. Barailon, therefore, with good reason affirmed, that the sudden and speedy appearance of the eruption implies nothing fixed, nor invariable ‡. Moreover, in my opinion, they falsely accuse the early eruption of crudity ; and, on the other hand, approve of a lingering one, as being elaborated by concoction ; for neither does the primary eruption require it, nor is it capable of actual concoction, as the other diseases generally are ; but it is cured by the heterogeneous and poisonous miasma being separated from the sound fluids, and quickly expelled. Which occurs very evidently chiefly in small-pox, measles, the scarlet eruption, and erysipelas. But if ever any bad consequence is threatened by the premature eruption of the pustules, I think that it ought not to be ascribed to the time of their appearance, but to the quantity of the morbid fomes for the reception of which the skin alone is not adequate. But a slow and lingering eruption, when it is to be succeeded by an unfavourable event, or long continuance of the disease, more truly points out the weakness of nature,

on account of which the system is incapable of separating and expelling the noxious fluid; or on account of the sluggish and viscid blood by which it is retained; or the density, rigidity, and constriction of the skin, by which its appearance is prevented. Experience also has shewn, that, if a copious eruption, or one which is sufficient for carrying off all the virus, takes place, and remains long, the disease will be of shorter continuance, sooner terminating in health. Barald ||, in particular, found this take place in his patients. An imperfect, partial, interrupted efflorescence, unless nature performs it by repeated efforts, ought to be suspected, and is frequently dangerous, or renders the disease more obstinate. Let it not be supposed, however, that a very copious eruption is the certain forerunner of a more favourable event; for, if it does not alleviate the other symptoms, and render the patient easier, it may prove fatal §. If the pulse, on the eruption taking place, becomes soft and full, while the convulsive affections are absent, and the pustules increase and become full of serum, it is a proof that a favourable termination of the disease will speedily follow ¶.

* L. c. c. 7. § 127. † L. c. p. 51. ‡ L. c. § 157.
 || L. c. p. 26. § Gasteller, l. c. c. v. p. 96. ¶ Allioni,
 l. c. § 119.

413. The colour of the pustules scarcely entitles us to draw any certain conclusion with re-

ard to the event ; unless, as Ludwig has observed *, and as I myself formerly noticed (387.), proper attention is paid to the other symptoms. Hence some consider the red, others the white ones, as benign. In general, however, the red ones are preferable to the white. Among the white ones, those are considered as being of a better kind, the basis of which is red ; the pellucid, crystalline, watery and milky ones being looked upon as worse. Ludwig also seems to ascribe something to the colour †, in puerperal women, although at the same time he does not overlook the other symptoms. For he adds, that if, on the third or fourth day after delivery, the *white miliary pustules* break out in them, and are attended with delirium, great heat, and other severe symptoms, they are *always fatal*, especially when they have been preceded by copious sweat, pale urine, attended with strangury and retention of the lochia ; if inflammation of the uterus, and a sense of chilliness, is perceived in the abdomen, and if the petechiæ break out along with the miliary eruption. He grants, however, that there are sometimes hopes when the symptoms take place somewhat more mildly, and the fever abates, attended with a copious discharge of fetid matter from the genitals. On the other hand, that in puerperal women, the *red miliary eruption* is milder, if it happens on the fifth, seventh, or ninth day, if the symptoms are less urgent, and

the usual excretions go on properly. But whether they be red or white, the event is very doubtful, and frequently proves fatal, as Vogel properly remarks †. The small, transparent, and scarcely perceptible vesicles, which I have already mentioned (383.), especially if they are numerous, generally denote a doubtful issue, or obstinate complaint ||. The quantity of the pustules also affords its prognostic marks. The milary pustules, when copious and confluent, are the worst of all, as being most apt to fall, and occasion death §. But those ones are not less alarming which appear scantily and sparsely, and break out with difficulty. But, according to Ludwig, who is supported by experience, nothing holds invariably in any of these respects. For the patient's habit of body, temperament, age, the country, season, an improper method of cure, neglect of regimen, the prevailing epidemy, and other circumstances, sometimes induce a great deal of variety in the complaint. But those which assume a brown, black, or livid colour, always afford a bad prognostic.

* L. c. P. I. c. i. § 218. † *Ibid.* ‡ L. c. § 146.
 || Allioni, § 128. Barailon, l. c. § Allioni, l. c. c. vii.
 § 129.

414. If, after the eruption, the more severe symptoms cease, or at least abate, it is a favourable symptom: on the other hand, it is very unfavourable if they continue, or are aggravated.

the former takes place in the benign disease, the latter in the malignant*. If, likewise, the eruption does not swell, and become somewhat tense, it is unfavourable. It is also a bad sign if it does not rise on the application of cupping-glasses, and vesicatories do not excite a blister on it. Lastly, those pustules are bad which on terminating do not occasion a pricking in the skin, but only excite itching †. They indicate either that the matter is carried to the internal parts, or that it is of a very acrid nature. But no eruption is so apt to subside, or to strike in and disappear, as the miliary one ‡. The pustules which at one time subside and disappear, at another striking out, are always alarming; for they either occasion imminent danger, or give rise to a tedious disease. The very worst sign, when they disappear, the patient's being attacked with vomiting, complaining of dimness of sight, hiccuping, raving, and, while he is drinking, shrieking out ||. After striking in, they frequently return with greater severity. Sometimes, however, they suddenly strike in, and remain concealed; and this chiefly happens when they are approaching to maturity. They generally then in a short time occasion death, in consequence of a metastasis taking place §. From a metastasis taking place to the head, an obscure delirium arises, the eyes grow dim and clouded, and these symptoms are the forerunners

of immediate and inevitable death ¶. Sometimes the eyes and face become red and sparkling, and a phrenitic delirium comes on, which is next succeeded by convulsions and death. But every other striking in, either of a critical swelling or erysipelas, unless the matter is carried to other external parts, or is excreted along with a copious discharge of turbid urine, occasions a dangerous metastasis **. Likewise great danger is threatened if the patient gives himself up to despair, and starts in terror out of his sleep; which I find first noticed by Allioni ††, and afterwards by others, who, however, have not had the candour to acknowledge the source from whence they had derived their information. But that kind of fever must be reckoned among the very worst symptoms. I have frequently indeed observed patients attacked with the sudden fear of death, sometimes without other bad symptoms being present; which happens chiefly at night, and five or six hours afterwards becoming delirious, convulsed, and having a great, strong, and very quick pulse, they were at length quickly deprived of life, sometimes without the miliary pustules subsiding, or disappearing. When I find the patient, therefore, affected with this kind of despondency in the morning subsequent to a restless, sleepless night, and discover that some mental derangement has preceded it on the night before, or is then present, and that

ne is not to be soothed into tranquillity, and still more if very thin, copious urine is frequently discharged, or from being thin and copious it becomes scanty, turbid, and thick, I without delay admonish the patient, or his friends, to send for a priest, and settle his other affairs, while there is still time left. Sometimes also it happens, that on the eruption taking place, and all the symptoms going on properly, all of a sudden, and without any evident cause, the disease is aggravated with all its symptoms, and in three or four hours cuts off the patient. When that happens, Gasteller †† affirms, that the fever increases in violence; that the head and breast are oppressed; that the delirium and convulsions come on; that the pustules disappear, either in part or intirely; that fainting, suffocation, extreme irregularity of the pulse, and, lastly, death supervene.

* Allioni, l. c. c. 7. § 130. † *Id. ib.* § 128. and § 131.
 Barail. l. c. § 153. ‡ Vogel, l. c. § 140. || Allioni,
 l. c. c. 7. § 128. 129. § Ludwig, l. c. c. 1. § 218.
 Barailon, l. c. § 156. ¶ Gasteller, l. c. ** Ba-
 railon, l. c. § 157. †† L. c. c. 7. § 130. ‡‡ L. c. p. 25.

415. But there are many other symptoms which ought to be properly weighed, in order to determine our prognosis with regard to the danger or security of the disease; each of which I shall first briefly enumerate, and afterwards I shall take a general view of them, pointing out the favourable or unfavourable termination

which they are known from experience to give us reason to expect. I shall therefore speak first of the sweat, which occurs very frequently in this disease. The more diffuse, copious, and forward it is, especially when conjoined with a very contracted pulse, the worse is it esteemed to be *. But if, as the eruption is about to appear, or when it is already begun, it intirely ceases, leaving the skin dry and parched, the apprehension and danger are much more increased. That, again, which is moderate before the eruption, and continues to flow gently after it, so that the whole body seems to be wet with vapour, rather resembling a copious, and uniformly-diffused perspiration, while the skin and pulse are soft, and the latter expanded, gives us reason to expect a favourable issue. But Molinar † affirms, that that which is copious ought to be considered in fact as critical, when it breaks out about the height, or at the turn of the disease, or, as he observes, after concoction takes place. Allioni suspects, or rather pronounces, the head-ach to be bad, if it disappears on a sudden before the fourth day, particularly in sanguine patients ‡. The same author, mentioning the *pricking numbness* (392. 399.) with which the fingers and extremities of the body are frequently affected before the eruption takes place, says, that if it is frequent, and attacks several parts, it denotes the abundance of the morbid fomes; but

that if it is not frequent, and slight, and is attended with a contracted pulse, sweat, urine, and other marks pointing out the quantity of the miliary fomes, it threatens death, because it is a proof that it is entangled by the tenacity of the fluids, and incapable of extricating itself ||. But Barailon informs us, that a copious eruption of pustules may be expected if the fingers are painful §. When the blood which is drawn is found to be of a scarlet, florid colour, and without serum, it is supposed to give reason for apprehension, particularly if a premature eruption takes place ¶. And some look upon that which shews the buffy coat, and is of a tenacious disposition, as not being less to be apprehended **.

* Allioni, l. c. § 122. † *De Miliar. Exanth. Indol. et Tractat.* Vienna, 1764. p. 147. ‡ L. c. § 120. || L. c. § 153. § L. c. ¶ Allioni, l. c. c. vii. § 134. ** Molinar, l. c.

416. As in other diseases, attending to the pulse in this one is of the greatest consequence. For many prognostic symptoms are afforded by it. A very contracted pulse portends a severe disease; and still more so, the weaker, more inconstant, and irregular it is. If it likewise intermits, and the intermission does not proceed from irritation of the *primæ viæ*, the disease in that case is said to be much more dangerous. Allioni * considers it as being decidedly of a pernicious kind, if, after the eruption has taken

place, the pulse still continues contracted, quick, and tense; for from this tension he conjectures that convulsions are coming on. But Barailon, from the convulsive pulse remaining after the eruption, or becoming still more convulsive, does not suspect the approach of convulsions, but that a fresh eruption of the pustules is about to take place †. Shortly after, however, he mentions that a convulsive pulse is of a very bad kind, and that a *formicating* one proves fatal; and, lastly, that immediate death is indicated if the pulse seems so empty, as to yield and become obliterated by every pressure. Generally a small, contracted, quick, or slow pulse, affords an unfavourable prognostic; while a strong, full, and expanded one, though frequent, gives reason for favourable hopes ‡. But if, in the third stage of the disease, it does not return to its natural standard, and continues to be febrile, we may conjecture that a complete crisis will not take place, but that some distressing symptom will remain ||. Barailon observes, that if the pulse, at the turn of the disease, be more tense and frequent in one side than in the other, a collection of the morbid matter may be expected to take place somewhere in that side, namely, a swelling, œdema, or abscess §. Lastly, from the doctrine of the Chinese and Bordeu, concerning the pulse, the same author does not hesitate to affirm, that a *capital* pulse, as it is called, threatens the superior parts of the body, while

small or *ferrated* one threatens the inferior parts, with some bad consequence. After these observations concerning the pulse, we must not omit the symptoms which the inspection of the urine commonly affords. Although in general the inspection of the urine is considered as being doubtful and fallacious, and therefore esteemed by many to be of small moment, I am of opinion that much light may be sometimes derived from it, especially when conjoined with other symptoms. The sudden changing of the urine, from being of a citron or fiery red colour, into a watery or pale one, gives reason for apprehending that a metastasis will take place ¶. Likewise the urine remaining long watery, especially after the eruption takes place, denotes either a dangerous metastasis to the brain, or a fresh eruption of the pustules being about to take place **. Its becoming white like milk, generally threatens duration of the disease, sometimes also death ††. Lastly, its being copious, of a cinnabar colour, and forming a crust on the sides of the chamber-pot, and continuing for some days, according to Moliar ‡‡, affords grounds for expecting a favourable event: and the same thing is to be said of that which deposits a copious sediment |||.

* L. c. § 121. † L. c. § 159. ‡ Gasteller, l. c. c. v. Barailon, l. c. § 159. § Barailon, l. c. ¶ Hamilton, l. c. 61. Allioni, l. c. § 123. ** Allioni, *ib.* Barailon, l. c. 157. Vogel, l. c. § 140. †† Allioni, § 123. Vogel, § 140. ‡ L. c. p. 128. 132. ||| *Id.* p. 147.

417. A moderate diarrhœa, and the stools being not very corrupted, generally afford a favourable prognostic *, especially in the species of the disease which is combined with a gastric and bilious colluvies. Hence, if it stops spontaneously and prematurely, or, in consequence of astringents or opium having been improperly employed, many bad consequences are threatened. In plethoric patients, and in those who, from the confirmation of the head and neck, have a natural tendency to diseases of the head, Hamilton has observed apoplexy succeed the suppression of the diarrhœa †. But although the looseness has been frequently found to prove serviceable, Vogel ‡, on the authority of Biaingan ||, advises us not always to trust to it. For a serous and colliquative one generally proves fatal. Stools tinged with thin blood, and observed to contain worms, leave no hopes §. The diarrhœa which supervenes in puerperal women, opposes the eruption of the pustules, and the flow of the lochia. Hence Hamilton pronounces it to be a dangerous symptom ¶; nay, others look upon it as being a fatal one **. I shall shortly point out what is denoted by an epistaxis taking place. It is considered by most authors, from the experience they have had of it, as being beneficial, especially by Antonius De Augustinis ††, Barald ‡‡, Boyer §§, Vogel |||, Debrest ¶¶, Plaignin ***, and others. For in consequence of it they have observed the head to

be relieved, the fever diminished, and, lastly, the most violent symptoms allayed. But this does not happen when the hemorrhage arises from dissolution of the blood †††, as any one may easily perceive. But in order to prove serviceable, the discharge of blood ought to be considerable. It does not prove beneficial, however, although it be considerable, when a difficult eruption of very minute pustules takes place, or when the skin becomes only red, attended with very bad nervous affections and symptoms. There is danger also, when the hemorrhage stops after the eruption of the pustules †††. Nor is it surprising if the trickling of blood from the nose, at whatever time it happens, is said to be fatal ||||, as that is a circumstance in common to all other acute diseases.

* Gasteller, l. c. Vogel. l. c. § 140. † L. c. p. 61.
 Vogel, l. c. || *Æt. Helvet.* vol. ii. § Gasteller, l. c.
 L. c. p. 61. ** Barailon, l. c. § 152. †† L. c.
 ‡ L. c. §§ Gasteller, l. c. p. 342. |||| § 140.
 ¶ *Journ. de Méd.* vol. xix. p. 118. *** *Journ. de Méd.*
 vol. xxiii. p. 338. ††† *Journ. de Méd.* vol. xxxii. p. 419.
 ‡‡ Allioni, l. c. § 133. |||| *Id. ib.*

418. The drowsiness is safer than the watching; nay, the more disposed the patients are to sleeping, the more successful is their recovery said to be, in the opinion of some authors *; but that must be received with some restriction, *i. e.* providing the sleep be not profound and lethargic, and

the other symptoms correspond with it. Fierce, burning eyes, and red cheeks, denote the approach of phrenitis †. A dry, black tongue, and excessive thirst, are considered as bad symptoms, unless they proceed from an improper method of cure being employed ‡. If the ulcers occasioned by blisters dry up prematurely, they imply a severe and lingering complaint. But the fetid smell and humour proceeding from these ulcers indicate nothing bad, according to Barailon ||. Difficult respiration, a faltering voice, tremor of the tongue, but particularly a convulsive dyspnoea, are symptoms indicative of great danger §. Hamilton remarked that the miliary pustules supervening in scarlatina, on the red colour disappearing, were a favourable prognostic ¶. A leucophlegmatic swelling coming on, particularly in puerperal women, generally foretels an unfavourable event **. Gasteller affirms, that all is over with the patient if the gums and teeth are incrusted with a chalky, yellow, black matter, or aphthæ of the same colour arise in the mouth ††. The same author likewise mentions two fatal signs, namely, a slight sore throat, which the attendants and patients themselves consider as a catarrhal affection, and a kind of film by which the pellucidity of the cornea is for some time obliterated. For he observes, that those patients in whom a sore throat, accompanied with some hoarseness, supervenes, are approaching fast to

their end, which generally takes place in twenty-four hours, or, at most, in forty-eight. But he considers the film obscuring the pellucidity of the cornea as fatal, although it appears early in the complaint, and goes off within twenty-four hours. He observed this symptom occur in a patient on the second day of the disease, and prove fatal eleven days after. Generally, however, it arose five, six, or eight days before death ‡‡. The convulsions which precede the eruption commonly terminate favourably, or at least are not very dangerous; while those which succeed to the eruption, or follow the depression of the pustules, are fatal |||. Likewise a certain indication of death being about to take place, is afforded by universal rigor and immobility, attended with languor and fainting §§.

* Hamilton, l. c. p. 61. Vogel, l. c. § 140 † Barailon, l. c. § 153. ‡ *Id. ib.* || *Ib.* § Hamilton, l. c. ¶ *Ib.* p. 62. ** Vogel, l. c. †† L. c. c. v. ‡‡ *Ib.* ||| Allioni, l. c. § 132. Damilani, l. c. p. 93. §§ Damilani, p. 19. 20.

419. The fever in the first stage of the complaint being violent, when it does not originate from the miliary miasma, but from other causes, does not render the disease more severe, for it is frequently then aggravated by other causes. We must, therefore, inquire into these, in order to be able to pronounce a right judgment *. The de-

lirium, convulsions, nay, the apoplexy itself, when they occur at the beginning of the disease, as being generally concomitant symptoms, are more easily removed by the physician's aid: but during the progress, or at the turn of the complaint, when the patient is weaker, and the miliary pustules,—either in consequence of cold being caught, or the improper employment of remedies,—are depressed, and lurk in the system, they prove fatal, because they arise from a metastasis towards the brain and nerves having taken place. If the disease, from being conjoined with milder symptoms at first, is neglected, and the patient does not follow a proper regimen, or if he is treated with calescent remedies, which by no means favour a diaphoresis, it frequently becomes worse, and threatens death, or at least a lingering illness †. Persons of a mild disposition recover sooner than those of an irascible, discontented temper ‡. Allioni || informs us, that robust, sanguine, brawny people, those who have an asthmatic affection, or who have formerly laboured under herpes, and similar cuticular complaints, gouty persons, drinkers of wine, and such as have been long affected with depression of spirits, run greater risk: while patients of a softer texture, and weak constitution, recover best. Hence women and children bear the disease much better than men. Barailon adds, that such as are liable to convulsions and nervous affections, are affected with more severity

and danger §. Gaſteller remarks, that robuſt people, and particularly thoſe with yellow hair, are ſometimes cut off within three or four days, in a ſtate of delirium, or affected with convulſions and hiccup; and he obſerves, that in thoſe perſons, who fall into this diſeaſe under the influence of any of the paſſions, as grief, or are exhausted with venery, after death ſymptoms of putrid diſſolution of the whole blood generally appear ¶. Hamilton, in fact, had before remarked, that ſuch people are more liable to the miliary diſeaſe, and bear it worſe. But we learn from Allioni, when the diſeaſe is reſolved, if none, or only a ſlight deſquamation of the cuticle follows, while ſome convulſive ſymptoms remain, and prove obſtinate, that the patient will ſuffer a relapſe **.

* Allioni, l. c. § 125.

† Hamilton, l. c. c. v. p. 60.

‡ *Id. ib.* p. 61.

|| Allioni, § 117.

§ L. c. § 151.

¶ L. c.

** L. c. § 136.

420. On the whole, it is the beſt ſymptom for the patients to retain their ſtrength, to breathe eaſily, to have a moderate fever during the continuance of the diſeaſe, to enjoy ſome reſt or ſleep at night, or during the day-time, to perform all the ſecretions and excretions with freedom, without their proving exceſſive, or debilitating, but gentle and relieving; for the puſtules to break out, attended with a conſtant, ſlight, and univerſal diaphoreſis; for the pulſe to be not very

hard, quick, or irregular, or oppressed, or contracted; for the urine to correspond with the drink taken, attended with some concoction, both in point of colour and contents; for all the symptoms, as the headach, anxiety, oppression at the chest, heat, sighing, thirst, &c. not to be very intense, or obstinate; for the affections of the nerves either to be absent, or not very urgent; for no mental derangement to be present, and for want of sleep, or, on the contrary, profound sleep, from which the patient cannot be awoke, to be absent. But Hamilton laid so much stress upon the easy respiration, that, although it was conjoined with debility, oppression of the chest, and sighing, he considered it as a sign of a favourable event going to take place, provided the eruption then appear attended with a gentle and constant diaphoresis *. Likewise Antonius De Augustinis observed a favourable event follow a copious hemorrhage in the epidemy of Novare, even when the sweat, during the progress and at the height of the complaint, —although it is otherwise useful and necessary,—disappeared, and did not return again †.

* Chap. v. p. 60. Vogel, l. c. § 140. † L. c. p. 45. 46.

421. But the symptoms which are the opposite of these afford a bad prognostic; particularly extreme debility; languor; panting respiration; oppression of the breast, without a subsequent eruption of the pustules; very ardent fever;

frequent sighing and fainting ; trickling of blood from the nose ; involuntary tears ; interruption of the efflorescence ; its being of a livid colour ; constant watching, or profound sleep ; thin, pale, very copious urine, or that which is scanty, brown-coloured, or turbid, at the very beginning of the disease ; delirium ; phrenitis ; subsultus tendinum ; convulsions ; loss of voice ; tremor of the tongue, or indistinct speech ; palsy of the limbs ; apoplexy ; an anginous soreness of the throat ; too profuse, premature, or cold sweats ; peripneumony ; a sense of suffocation ; a very distressing cough ; weight of the præcordia, and hiccup ; violent, frequent, and difficult vomiting of a crude, serous, or bilious matter ; distension of the hypochondres ; a tympanitic swelling of the belly, painful to the touch ; a variable, irregular, small, ferrated pulse, growing gradually weaker, or, from being hard, becoming soft, without any diminution of the disease ; acrid heat ; dry skin ; languid eyes, and almost closed, or half-open during sleeping ; or, on the other hand, rolling, and, as it were, sparkling ; their being fixed on a spot ; dulness of sight ; blindness ; insensibility ; stupor ; blackness of the teeth and lips ; a fetid breath ; dejection and despair ; coldness of the extremities ; serous, oily stools, like melted fat ; or unexpected looseness, attended with worms and loss of strength, which Molinar observed to be very fatal *. To these

symptoms Antonius De Augustinis adds, as one full of danger, an uneasy itching all over the hairy scalp, and at the point of the nose †. The more of those symptoms occur conjointly, the greater is the danger, and the more certain are we that death will happen ; or *vice versa*. For it is not necessary that they should all appear together, it being sufficient that some of them are present. Nor must we forget the particular observations already laid down for directing our judgment in pronouncing the prognosis. Barald informs us, that in the epidemy which prevailed at Corregio, the hiccup, the black or yellow matter on the teeth and lips, the delirium, convulsions, and catching of the bed-cloaths, which are generally fatal symptoms, did not prove so in all the patients whom he attended ‡.

* L. c. p. 116. † L. c. p. 44. 45. ‡ L. c. p. 78.

THE CAUSES.

422. AUTHORS do not seem to be agreed concerning the proximate, or rather material cause, as it is called, of this disease. For different writers have proposed different ones, according to the opinions they have adopted concerning the origin and nature of the disease itself. Some also are not altogether consistent with themselves, being doubtful whether to acknowledge the existence of one or more, and

what one should be considered as more frequent and probable than the others. Hamilton, to whom the first place is due, taxes abundance and acidity of the ferous fluid, being induced to do so from having observed that pale and weak people in particular, and those whose blood abounds with serum, are more liable to this complaint, and that the sweat proceeding from their bodies has an acid sinell. And he proves the truth of his opinion by a good many successful cures, which he performed with antacid, absorbent, and gently-diaphoretic remedies. Fordyce, whom Planchon quotes *, taught by an experience of sixteen years, confirms the truth of all that had been advanced by his predecessor Hamilton concerning the miliary eruption, and adopts the cause proposed by him. Likewise Chambon de Montaux †, one of the members of the Royal Medical Society of Paris, who has very lately written on the subject, notwithstanding of all that had been written by others in opposition to the opinion, does not hesitate to adhere to Hamilton, thinking that the cause proposed by him had been so clearly demonstrated, as not to leave a shadow of doubt concerning the truth of it: and he adds, that some, not contented with the arguments of Hamilton, by way of a test, have applied blue paper to the skin of the patients, and have observed its colour to be changed into a red, by which it is clearly demonstra-

ted, that the sweat in the miliary disease manifests the acidity of the ferous fluid.

* *Dissert. sur la Fievr. Miliar. di Femm. en couche*, § 3.

† *Malud. des Femm.* T. i. c. viii. p. 470.

423. Nor does Hoffman differ much from Hamilton ; for he says that the matter, which is the *proximate cause* of the miliary disease, is contained in *corrupted lymph of a specific nature*, and that it is forced by nature to the surface *from the internal parts, principally the nervous ones*, under the form of the miliary eruption, both white and red *. But as he supposes these miliary pustules to be intirely of a double kind, namely, red, and white, he is obliged to admit that the nature, or degeneracy, of the fluid calculated for the production of each is of a double kind ; namely, one, *acido-vappid, of a more fixed kind* ; another, *sulphureo-fetid, of a more alkaline and volatile disposition*. He supposes that the pellucid, insipid, gelatinous fluid, which we call the lymph, is prone to the former ; and that the blood, and its serum, in which there is present a great quantity of sulphur and salt, is disposed to the latter. He is of opinion, therefore, that the white miliary eruption is occasioned by corrupted lymph, and that the red one proceeds from the blood and its serum. Nor is his opinion unsupported by probability ; for, as he observes, there are many proofs that the lymph is in a state of acidity in the white miliary eruption, namely, the great

Separation of the watery part of the blood from the general mass, by means of the *sweats*, *copious*, *thin urine*, sometimes by the *ptyalism*, or *watery stools*, which take place, as being the effect of the acidity coagulating the blood, and expressing the aqueous part; the injury occasioned by acids of all kinds, and the copious use of refrigerants in the treatment of the disease; the vast relief obtained from antacids, and bland volatile remedies; the preceding abuse of acid and acescent things; a preceding indolent way of life; and, lastly, the clotted blood found in the large vessels and heart of those who have died of the white miliary eruption, evincing the presence of a coagulating acid †. But he conjectures, that in the red species *acrid salino-sulphureous serum* is the hurtful cause, from there being present in it much greater itching and heat of the skin, than what takes place in the white eruption; and also from the circumstance, that those persons are more liable to the complaint, who labour under abundance of impure blood, as scorbutic people, such as are advanced in life, or in whom the usual evacuations of blood do not occur, those who are accustomed to salted meat and vinous liquors, and who are of a lax habit of body, and do not exercise themselves sufficiently,—from causes retaining the acrid, ferous colluvies, which ought to have passed through the pores of the skin, as cold air, cold drink taken when the body is covered with

sweat, sudden terror, and the like; from the utility of mucilaginous and correcting remedies; and, lastly, from the heat and itching being augmented by calefacient and volatile remedies, and the heating regimen †.

* Hoffm. *Med. Rat. Syst.* T. 4. P. 1. c. ix. § i. and vii.
 † § viii. ‡ § ix.

424. The majority at least of other writers have adopted either Hamilton's or Hoffman's sentiments. They at any rate agree in accusing the lymphatic and serous fluid of being corrupted, or impure, and acrid. Vogel, without hesitation, ascribes every kind of miliary eruption, whether primary, or symptomatic, or secondary, both red and white, to *a peculiar and spontaneous vitiation of the lymph, which, however, can scarcely be ascertained*; although he does pretend to deny, *that sometimes, in consequence of excessive heat of the chamber and bed, and the liberal employment of cordial remedies, it may be forced to appear in acute fever, although it would otherwise have lain dormant* *. Joubert likewise taxes the serum, but takes care not to define the peculiar nature of its vitiation. For he supposes, from comparing several observations, that the miliary eruption appears to be uniformly produced by the serum of the blood being altered and vitiated in various ways; and he thinks that this opinion is confirmed, 1. by the usual subjects of the disease being young men of the sanguine temperament, who observe no particular regimen, and

re addicted to all the vices common to youth, indulging in indolence, drinking to excess, sleeping little, and being frequently agitated by various passions; 2. by puerperal women in particular being seized with the disease, in consequence of the suppression of the lochia, or the retiring of the milk; 3. by the eruption appearing more frequently after a cold, damp winter, by which the perspiration is suppressed, that is, at the commencement of the spring, when the vitiated serum separates, and is disposed for excretion. And hence, he supposes, it happens, that the eruption is so frequently conjoined with catarrhal and rheumatic affections. From the serum, therefore, being thus rendered impure and vitiated, and carried to the exhalants, he infers, that they are irritated and corrugated, and that its stagnation occasions the miliary pustules †.

* L. c. § 140. † *Hist. de la Soc. Roy. de Méd. an. 1776*, p. 529. *Mem. sur les Fievr. Exanth.*

425. The *serous* and *lymphatic* part of the blood is likewise supposed to be corrupted, and, as it were, rendered *caustic* in this disease, by Planchon *, who conceives that it is depraved in this manner by the perspiration of the skin being checked, which is its most common and frequent cause. The miliary matter, therefore, as he supposes, is not of an inflammatory, but of a putrid and corruptive disposition. In the case of puer-

peral women, however, instead of retention of the perspiration, he accuses the lacteal fluid, and supposes that it is frequently more or less vitiated, from the lochia being checked, and flowing back, and that it is sometimes brought to such a pitch of putrefaction, as to derange the fluids and whole animal economy. Nor was Gasteller of a different opinion †; for he considers retention and acrimony of the perspiration as the principal cause of the corruption of the lymph, blood, and bile. But he denies that the matter occasioning the disease is of an acid nature, although the sweats have an acid smell. Besides retention of the perspiration, however, he is obliged to confess, that noxious miasmata, proceeding from impure, damp, or otherwise infected air, are sometimes introduced into the blood, which render the former cause worse, and aggravate the disease, as if these last were not sufficient of themselves to excite it.

* *Diff. sur la Fievre. des Femm. en couch.* § 9.

† L. c. p. 70. to 74.

426. Very different sentiments are entertained by other authors of no less eminence, among whom I may mention the distinguished names of Allioni, Tissot, Störck, Collin, and Molinar*, to which may be added that of Quarin, who does not deny that this eruption proceeds sometimes from an *epidemic constitution*, and *stimulus contained in the air*; which last, with Van Swie-

ten, he seems to allow may possibly exist †. For these authors contend, that the miliary disease is produced and cherished by a *peculiar miasma*, or *poison*, which is supposed in like manner to give rise to small-pox, and that by it is occasioned a fever *sui generis*, which no art can imitate, or produce. And this opinion is considered by Barald ‡, Antonius De Augustinis ||, and Felix Astius §, to whose opinion I myself accede, as being the most probable. For the more serous diathesis of the blood, and the acescent, or acid degeneracy of the serum, to which Hamilton ascribed the origin of the miliary eruption, can scarce be supposed, of itself, to afford the proximate cause of the disease; although I do not deny that weak, pale people are more liable to this kind of eruption, and that their sweat, when they are affected with this disease, has an acid smell, and is really acid; but it is to be observed also, that they more readily recover, contrary to what ought to follow if a vitiated state of the lymph or serum occasioned it, as in these people, in particular, there is an abundance of both. But there are many proofs of both these causes very frequently concurring in cachectic people, in chlorotic girls, and in rickety children, in whom there is an abundance of serous fluid, generally accompanied with spontaneous acidity, and yet we do not frequently observe this eruption occur-

ring in such persons, as we should otherwise do were it produced by these causes alone. Likewise persons of the sanguine temperament, and of a good habit of body,—in whom neither the ferous part of the blood can be said to be excessive, nor spontaneous acidity to be present,—are liable to the complaint. Nor can we give our assent to the opinion of Hoffman, who affirms that the *white* species of the complaint proceeds from acid lymph, and the *red* from the blood and its serum abounding with the salt, sulphureous, and alkalescent principles. For not only do both the *white* and *red* species occasionally appear in the same person, but it also frequently happens, that that which is originally white is changed into the red, and the red again into the white, which I have already noticed (388.), so that the colour cannot denote a difference between their causes, but is more probably to be derived only from the patient's temperament, habit, age, the method of cure employed, and other circumstances. But were retention of the perspirable matter the real proximate cause of the miliary eruption, as Planchon and Gasteller in particular imagine, how comes it, when this is the commonest cause, that the miliary eruption either occurs very rarely, or only appears in some countries and places, or during certain states of the air, and prevails then universally? Why do these very writers, as if distrusting their own

theory, laying aside this cause, betake themselves at one time to suppression of the lochia, at another time to retention of the lacteal fluid, sometimes to the noxious effluvia of marshes, and other miasmata transmitted into the body from the air?

* *De Miliar. Exanth. Indol. et Tractat.* p. 33. † *Meth. Med. Febr.* c. vi. p. 78. 79. ‡ *L. c.* p. 56. || *L. c.* p. 27. to 29. § *Terz. an. Med. Mantouan.* p. 107.

427. Besides, the miliary disease is sometimes epidemic, or endemic, sparing nobody, of whatever constitution, temperament, age, or manner of living. It is frequently communicated by contagion, infecting stout people, accustomed to much exercise, and in perfect health, in all of them going through the same course, and giving rise to exactly the same phenomena, chiefly the nervous symptoms, and, lastly, occasioning the miliary pustules after an uniform and invariable manner. The eruption itself is so essential, peculiar, and inseparable, that it cannot by any means be considered as accessory, accidental, or factitious, nor can it by any caution be prevented. For Collin*, Tissot†, Haller, Crantz‡, and other most respectable physicians, mention their never having seen it occasioned by the heating regimen, or bezoartics, or sudorifics, or spirituous remedies ||. Molinar asserts, that he frequently saw the miliary eruption supervene in his patients,

although they had been treated with refrigerant and antiphlogistic remedies, and were constantly exposed to the cold air &c. This same fact is confirmed by Quarin; who observes, “ In the year 1758, almost all such as laboured under acute fever were affected with this eruption, although the *primæ viæ* had been purged, and the patients were not loaded with bed-cloaths, or harassed with calefacient remedies ¶.” It has likewise been repeatedly observed by myself and others, biased in favour of no particular opinion. Almost daily experience convinces practitioners that sometimes it can by no means be avoided, for it occasionally eludes both the most cooling regimen that can be employed, and the coldest drink, as well as bleeding, repeated even seven or nine times, together with vomiting, purging, and the repeated employment of injections. For it scarcely ever happens, that, in consequence of employing these remedies at the beginning of the complaint, the eruption does not ultimately appear on the surface, which is its natural tendency. Which being the case, why may there not exist in the miliary disease a peculiar virus, or miasma, such as is universally acknowledged to take place in small-pox and measles? By it would be explained the *peculiar unaccountable vitiation of the lymph*, the presence of which Vogel suspected (424.); or that other indefinite vitiation and manifold depravation of the serum, which, as I have

ready said, Joubert supposed, from a variety of observations collected together, takes place in this disease. But if this proximate cause is admitted, it follows, that the other ones, which are adduced by writers (424. 425.), must be considered only as remote ones, both predisposing and exciting.

* L. c. p. 49. † *Lettr. à M. Hirtzel*, p. 51. 52. 61. 64.
(Collin, p. 53.

|| Quarin adduces the testimony of Baldinger, who remarks, that the miliary eruption rarely occurred in the King of Prussia's army, although the patients had been harassed both with the heat of the bed, and the employment of heating remedies.

§ L. c. p. 33. ¶ L. c. p. 79.

428. They tell us, that this miasma (427.) is thin, acrid, and principally hostile to the nerves; and, in fact, the phenomena themselves declare that this is the case. Its *tenuity* is manifested by its being easily resolved into halitus, and transmitted into sound bodies in the form of vapour, and also received into the system by inspiration. Nor is it any objection to this, that, when carried to the skin, as Collin objects to Allioni, it is detained under the epidermis. For that does not always happen; especially when it arrives at the surface free, and as it were solitary: in which case it has already appeared, that it sometimes escapes without delay along with the insensible perspiration. But when it stops there, occasioning the

pustules, that is not owing to its sluggishness and density, but the tenacity of the fluids with which it is blended. Nor must it be supposed that it always passes off through the minute exhalant vessels; for it is probable that it sometimes exudes through the inorganic pores, and is accumulated under the epidermis. Nor is it irrational to suppose, that it sometimes reaches the surface along with the lymph, which moistens the nerves, and is contained in their sheaths, and that it distils from the points of the nerves, which there lay aside their vaginal covering, under the epidermis, raising it into pustules. But that it is *acrid*, appears from the circumstance of its not only exciting fever, and that frequently of an acute and very ardent kind, but also inflammation, pricking, and considerable itching, and, lastly, loosening the cuticle, in consequence of which a desquamation of it takes place. Moreover, that it is extremely *inimical* to the nerves, is evident from its attacking the head particularly, and inducing watching, or *coma vigil*; from its occasioning cramps, tremors, subsultus tendinum, convulsive dyspnœa, hiccup, convulsions, epileptic fits, and similar nervous affections. Sometimes, examining its properties more narrowly, add that it is *septic*, on account of its deranging the natural crasis of the blood, separating its constituent parts, and ejecting the serous fluid from the blood, in such a manner

as to make it flow off abundantly in all directions through the relaxed vessels of the kidneys and skin, and predisposing the fluids to putrefaction : which they contend sufficiently appears, not only from the putrid halitus issuing from the patients, but also from the rapid putrefaction which takes place immediately after death ; and they are so far from ascribing to it an acid disposition, from the sweat having an acid smell, or having acquired actual acidity, that they are rather of opinion, that corruption of the lymph and serum may be inferred from it. For they say, that the lymph and other alible fluids become acid, and have an acid smell before they putrefy. But in my opinion we are not entitled to infer, that that miasma, although it were possessed of a septic property, is itself of a putrid nature. For it does not follow, that that which may predispose the fluids of the living body to putrefaction, is itself putrid : a fact which is well known to such as are acquainted with physiology and pathology. It would be well that it were of a putrid nature, for it might be corrected, rendered inert, or almost destroyed by acids and antiseptics, before occasioning any injury to the system ; which is by no means the case, as repeated experience has proven. Nor are its effects such as clearly to demonstrate its septic power. For very frequently the blood which is drawn shews an inflammatory diathesis, which is confirmed by the ardent fever,

strong, hard pulse, and the peculiar inflammations of the viscera, which in the first, and sometimes also in the second, stage of the disease, require repeated bleedings, which doubtless by no means would be admissible in a putrid dissolution of the fluids. Hence Allioni was led to suppose, that this miasma possesses the power of congealing the blood and other fluids. But the rapid putrefaction which takes place after death, rather points out the violence and effects of the disease, than the peculiar nature of the cause from which it proceeds. A person, therefore, would steer a safer course in pronouncing the miliary miasma to be not yet sufficiently known, and to be intirely different from all others, constituting a peculiar genus, which is to be recognised only by the phenomena which it exhibits.

429. But although approved writers almost unanimously recognise such a miasma (428.); with respect, however, to its origin, they either pass it over in silence, or do not explain it sufficiently. It therefore remains for us to inquire, whether it arises in the system spontaneously, or, being generated elsewhere, passes into it. It is doubtless an investigation attended with many difficulties, to do justice to which I confess myself intirely inadequate. But if there be any room for conjecture, I should not consider it as absurd to suppose that it may originate in both ways. For as the places in which the miliary

Disease prevails endemically are surrounded with stagnant waters, and a marshy soil, and are consequently immersed, as it were, in air perpetually abounding with various kinds of effluvia and exhalations, why may not that miasma be derived from these noxious emanations? About thirty years ago, at Mantua, where for some time the miliary disease had begun to prevail sporadically, it happened to prevail epidemically, attacking intire families, one after another, almost uniformly proving fatal. Such was its violence and destructive tendency. There was no other manifest cause to which this unusual and terrible devastation could be ascribed, than the recent cleansing of the ditches, with which the city is surrounded, and the transporting of the putrid mud behind the walls to form the mound; for, in consequence of it, the poisonous effluvia being raised by the heat of the sun, had infected the air all over the city. That this was really the origin of the unusual increase and diffusion of the miliary poison, afterwards appeared, from the circumstance, that after two or three years had elapsed, and the causes above mentioned had been gradually avoided, the force and frequency of the disease were so much diminished, that at present it is only observed sporadically, and generally is of a mild disposition in that city *. Moreover, if all the circumstances preceding the appearance of the epidemic miliary disease any where are accurately investigated, something will always be found

which has been communicated to the air by stagnant waters or inundations, or by the beds of rivers, or the bottoms of pools being laid open, and in a state of fermentation, or by earthquakes, or the exposing of caves or sewers, or by the maceration of lint or hemp in the neighbourhood; or by the south winds, and those blowing from unhealthy districts, or by unusual phenomena in the air; or which corrupted grain, herbs, wine, or bread have occasioned. All which facts, if I mistake not, seem to shew that the miliary poison very frequently proceeds from external causes, and is introduced into our bodies. For there is nothing to prevent such causes from arising in our own bodies, which may so vitiate the colluvies in the *primæ viæ*, fluids, bile, and other humours, as to make them perfectly acquire the nature of the miliary miasma, and occasion the miliary disease, particularly the sporadic species, which may be more or less readily communicated by means of the seeds of the disease and poisonous halitus emanating from the body. And I am of opinion, that this miliary virus principally takes place in the febrile disease. But whether that ought to be admitted in the species of the disease unaccompanied with fever, and particularly in that with which children and young people are attacked in the summer-time (384.), or whether we ought rather to accuse the heat and acrimony of the blood only, I shall not take upon me to

determine, unless it be supposed to be so mild as to differ widely from the disposition of the real poison, in the same manner as the variolous virus, which in the spurious small-pox is so mild, that it can scarcely be compared with that which occasions the genuine small-pox.

* Afti, *Terz. Ann. Med. Mantouan.* p. 83.

430. Hence it follows, that the other causes enumerated by authors, are only capable of producing this disease remotely, either like *occasional* ones, exciting the miasma to action, or like *pre-disposing* ones, preparing the body for its production, or reception. Such, to omit nothing, besides those already enumerated, are food consisting of farinaceous, sweet, fermenting things, and ripe fruits; scanty, thick, watery, impure drink; damp, bad air, pregnant with heterogeneous principles, or otherwise vitiated; long continued costiveness; neglecting to keep up the perspiration; bad fluids; the suppression or omission of critical or customary evacuations; profuse bleeding, followed by loss of strength; the passions, particularly violent anger and grief, and long continued anxiety; watching; intense study; or an indolent sedentary life; excessive labour; want; a weak, lax habit of body; a sanguine or phlegmatic temperament; according to Hoffman, childhood or old age rather than the prime of life; but according to Allioni †, youth rather than childhood or old age, and particu-

larly the sanguine temperament, although every temperament is considered as liable to it; the female sex more than the male; child-birth; the violent extraction of the placenta; retention of the lochia; a colluvies in the *primæ viæ*; the air of the bed-chamber being too warm, or not renewed, and other things in any manner occasioning plethora, acrimony, atony, debility, and obstruction. Likewise long continuance of the south winds, and variableness of the seasons and weather, particularly in the winter-time, have been sometimes observed to precede the epidemic disease. Allioni observes ‡: “As the summer of the year 1733 had been very warm and dry, and likewise the autumn and winter unusually warm, in the year 1734, Turin, and almost the whole of Piedmont, were affected with a very violent miliary and petechial epidemy. Grunwald mentions that the same state of the air that year caused the prevalence of the miliary disease among the inhabitants of the highest tops of the Alps.” And he is disposed to believe that the immoderate employment of calefacients in fevers, has a tendency this way. But concerning the seasons, he is of opinion, that the spring is more favourable to the production of the disease, than the autumn, and that the summer || and depth of winter are least of all disposed to generate it. He grants, however, that damp air and changeable weather, or very changeable

weather alone §, is more disposed to generate it, than pure air, and constant weather; but that damp air, which, however, is constant, unless some other cause be present, renders the disease milder: and, on the other hand, that warm weather opposes its generation ¶. By these and the like causes, he supposes that the poison is excited to action, or that such a change is induced in our bodies as renders them fit for being acted on.

* L. c. sect. i. cap. ix. § x. † L. c. § 61. ‡ L. c. § 64.

|| With respect to the summer-season being least disposed to favour the production of the miliary disease, we must except the benign species of the complaint, which is unaccompanied with fever, and occurs in children and young people most frequently in the summer-time.

§ L. c. § 60. ¶ *Ibid.*

THE CURE.

431. As no antidote has hitherto been found for specifically correcting, neutralising, or altogether destroying the miliary miasma, and its particular nature is not sufficiently known to enable us to oppose it with certainty; it consequently follows, that no method of treatment seems better adapted for curing this disease, than that which has already been proposed in general in the cure of the other exanthemata, and particularly that of small-pox, to which it has a great affinity. We must therefore, as far as possible,

blunt and correct the acrimony of the miasma by general means, assisting the separation of it from the sound fluids ; promote its excretion, and therefore open all the organic excretories of the body, particularly the cutaneous ones through which it is eliminated, that it may the more readily escape in all directions ; and, lastly, we must alleviate the urgent symptoms. But the powers and motions of nature must always be regulated in such a manner, as neither to exceed nor fall short of the proper mean. In the species without fever, as also in the benign, pure, and simple kind, nature alone is sufficient ; nor, in general, is any other assistance required, than attention to a proper regimen, which, as being in common to every species of the complaint, will come in more properly at the end. But in the malignant or disguised disease, or that which is complicated, nature alone being incapable of overcoming the disease, the aid of art must be called in. On the whole, if the fever is moderate, as I have repeatedly inculcated, it ought neither to be excited nor diminished. If it is less than proper, and in a measure torpid, while the other symptoms correspond with it, that is to say, if all the vital functions are in a state of languor, it ought to be increased with caution by means of some stimulus. On the other hand, if it is excessive, it ought to be checked until it

is brought down to the proper medium. The eruption must not be forced out too studiously, but rather kept up. The warm regimen, cordials, and alexipharmacs, in general prove hurtful. Bland diaphoretics, however, by which the perspiration and eruption of the pustules are gently promoted, are not to be intirely rejected, particularly when conjoined with diluents; and if considerable heat is present, they may be corrected with nitre *.

* Ludwig, l. c. § 221.

432. But the practitioner is not a little puzzled about the proper employment of the remedies which fulfil the various indications. For experience has shewn, that all patients do not receive relief from the same remedies, but require different ones, because it has been found that their effects vary much, on account of which there is a great dispute among physicians concerning the employment of them *. This holds particularly with respect to bleeding, which some consider as being generally superfluous, or hurtful in this disease, while others consider it as not only useful, but almost indispensable. Without doubt, the miliary eruption of itself does not require it, as Hamilton †, Collin ‡, and others have very properly remarked, particularly the white and watery, or crystalline species, unless some urgent symptom be present. It is with good reason,

therefore, that Hoffman || and Gasteller § advise it to be employed seldom, and with the utmost caution. The latter also adds, that he only employed it when inflammatory symptoms were present, and that his patients never derived much advantage from it ; probably, as he suspects, on account of their having been affected with a scorbutic taint. Meade, although at first he thinks that blood should be let, provided the strength admits it, if the body be covered with sweat, he abstains from bleeding, or puts it off for one or two days, or until a more convenient opportunity, and remarks, that the smaller the quantity of blood taken is, the safer in general is the termination of the disease ; for he observes, that when the strength fails towards the end of the disease, the pustules strike in, and the patient dies ¶. It is certain, that when the strength fails, and the face becomes pale ; when the pulse is weak, small, depressed, and soft ; when frequent faintings occur ; when the body is weak, and there is not a sufficient quantity of blood, as chiefly happens in that species in which a white, crystalline, watery, and pellucid eruption takes place, all these symptoms contra-indicate every kind of profusion of blood. There is therefore very seldom occasion for bleeding in this case, unless plethora, or the suppression of some usual excretion, or some other symptom indicating it, as asthma, pleurisy, and the like, are combined

with it, and oblige us to employ it at the very beginning of the disease.

* Vogel, l. c. § 141. † *De Febr. Miliar.* c. 6. p. 65.
 ‡ L. c. p. 71. || *In Cautel.* § vi. § L. c. p. 361.
 ¶ *Monit. et Præcep. Med.* sect. iv. p. 13. 14.

433. Nevertheless, the miliary virus,—especially in people of the sanguine temperament, in such as are plethoric and robust, and have a good habit of body, and at certain times of the year, as well as during particular states of the weather,—is sometimes of such a nature, that by irritating in a particular manner the heart, vessels, and nerves, either in greater quantity, or with greater acrimony, it excites a more violent and acute fever. Whence Allioni thought, that it possessed the power of coagulating the blood, and inflaming the extremities of the minute vessels, and therefore more frequently gave reason for letting blood than is necessary in the petechial disease. Be that as it may, no one can deny this tendency of the disease to inflammation, if he be at all conversant with the practice of medicine. For in the epidemy which prevailed in the year 1755 at Novare, so great was the inflammatory diathesis, that scarcely any person affected with the miliary disease recovered, until liberal bleeding had been frequently employed *. At Corregio also, although the blood was not so inflammatory as at Novare, for it generally appeared dense and coagulated, but of a shining red colour, and con-

tained much ferum ; when certain indications were present, or when the fever was very violent, or the heat distressing, Barald did not abstain from bleeding. If, therefore, very violent fever, and a great, strong, hard pulse ; burning heat, and thirst, and flushed face ; anxious respiration ; headach ; the patient's temperament, habit, age, and the like,—although not all together, at least several of them,—indicate the propriety of bleeding, blood is drawn with safety ; nay, it really ought to be drawn before the eruption appears, and sometimes not once only, but repeatedly, that is to say, so long as the symptoms continue, particularly the great, hard, vibrating pulse : and it is better, in Allioni's opinion, to exceed a little in letting blood, than to refrain from it altogether. For in this manner the disease is in a manner curbed, and the more dangerous symptoms, which to a certainty would afterwards appear, are prevented. And it is much more requisite in the *disguised* miliary disease (401.), and in the *complicated* species (405.), as in them the diseases under the mask of which it lurks, or with which it is combined, are generally of such a nature as to require and bear repeated bleeding, and the more easily, if any manifest inflammation, as of the lungs, fauces, uterus, or any other of the viscera, or suppression of the menses, lochia, or hemorrhoidal flux, be present, or its approach is apprehended. Molinar, from

repeated trials, ascertained, that in puerperal women affected with this disease, on the lochia stopping, the blood was always advantageously drawn, both from the foot and arm. In which case, if the languor of the pulse and strength deters us from opening a vein, and, on the other hand, the apprehension of hysteritis, from retention of the lochia, requires immediate assistance; leeches applied to the lips of the vulva have generally afforded almost certain relief, without any loss of strength. But when no indication for bleeding is present, while the patient is distressed with anxiety, accompanied with a quick pulse and headach, in that case antiphlogistic remedies are generally recommended, and, among these, a chief rank is said to be held by the decoction of marsh-mallow root, with oxymel and diaphoretic antimony. For by means of them, not only is the lingering eruption accelerated, which generally makes all the other symptoms disappear, but it is likewise kept up well to the end of the disease ‡.

* *De August.* l. c. † L. c. § 28. 29. p. 61. ‡ Col-
lin, p. 72. 73.

434. But when the pustules make their appearance, in the same manner as takes place in all the other exanthemata, physicians are more doubtful about letting blood in this disease. For they are afraid of their subsiding, or striking in,

in consequence of it ; as it has been proven by experiment, that if any of the viscera is severely inflamed, and a very violent fever is present, copious bleeding may be attempted, without the eruption subsiding, or striking in *. For such is the force of the circulation which still remains after bleeding, that the fluids do not cease to be propelled to the surface. Blood may be also drawn during the eruption, when, besides very acute fever, the belly becomes tense ; the urine is rendered thin, watery, or pale ; when a sharp pain, and burning heat, are felt in the uterus ; when the lochia stop ; when the head grows heavy ; when the pulse is suppressed, or beats with great violence ; when the chest is oppressed, and the respiration interrupted, &c. †. Allioni very properly remarks, that the violence of the fever, the delirium, and other symptoms in this second stage, can hardly be allayed by bleeding, nay, that even convulsions are frequently occasioned by it, and the patient's death accelerated ‡ ; as I myself have more than once observed, especially in those patients from whom, before the eruption, blood had been frequently taken. But if the inflammation of any viscus requires immediate relief,—although the extreme debility may excite the apprehension, that bleeding would completely reduce the strength,—it will be proper then to let blood, though sparingly, and in some measure at intervals ||.

* Collin, l. c. p. 62. Molinar, l. c.

† Collin, p. 71.

L. c. § 141.

|| Collin, *ib.*

435. There is less controversy concerning the application of cupping-glasses. Most authors approve of applying them to the back and limbs, both before and after the eruption, supposing, that by means of them the miliary poison is called to the surface, that revulsion from the head is occasioned, and the headach, delirium, and coma, very much relieved. Damilani, however, found them prove hurtful *. Barald agrees in opinion with him, seriously affirming that the eruption of the pustules is retarded, or even repressed by them †. I confess that I sometimes have been disposed to doubt that so a high a value was to be set upon them, as other authors generally believe. For it did not appear to me to be possible, that cupping-glasses, with however much caution, could be applied to the naked body, without the skin, which in the miliary disease is much more sensible, in consequence of the application of the cold air, becoming corrugated and contracted. I say nothing of the irritation which they occasion to the skin, nor concerning the obstruction of the cutaneous vessels, which immediately follows the diminished weight and elasticity of the air. In consequence of which I was somewhat fearful that they would be apt to check the eruption of the miasma about to take

place, or repel it after it had broken out. I by no means, however, intirely reject the employment of them, as I find them approven of in consequence of the experience which others have had of them. Allioni †, from his experience, does not altogether oppose them, particularly if scarification is employed. For he asserts, that by means of them the restlessness, and approaching convulsions, are sometimes allayed or prevented; and he adds, that they have been employed with utility, when, in place of the pustules, only some redness, accompanied with very minute spots, suffuses the skin, and the virus appears to lie deeper seated in it. He mentions, that to a certainty, the delirium was sometimes allayed by means of a large cupping-glass, with scarification, applied to the back of the head. But he says, that this remedy appeared to him to be more efficacious when the delirium had come on in the first or second stage, and had not yet got to a great height. For when a metastasis takes place, or the congestion is completed, there is scarce any hopes that it will be resolved. Leeches also, applied to the temples, have a remarkable effect in removing the repletion of the vessels in the head, and overcoming the delirium.

* L. c. p. 122. † L. c. p. 35. 36. ‡ L. c. § 149.

436. Nor is the propriety of employing evacuants, strictly so called, less disputed. Some authors consider every kind of evacuant as ho-

stile to the strength, and unfavourable to the eruption ; others prefer emetics to cathartics, and, if they grant that cathartics are to be employed in any case, only allow them towards the end of the disease *. Some are not averse to gentle laxatives, particularly the antiphlogistic ones †. And others, with Sydenham ‡, propose pretty brisk cathartics at the beginning of the disease, when it is simple and pure, at least three times repeated ; and they are confident, that, by means of them, they prevent the eruption, and, as it were, root out the fomes of the disease ||. Concerning all these points, I shall deliver my sentiments in a few words. In the first place, therefore, if the symptoms which have been already repeatedly enumerated indicate the presence of a colluvies in the stomach, or the disease has been communicated by contagion, at the very beginning, before the appearance of the eruption, it is proper to employ a gentle emetic. In general it is safer, and more advantageous to give it in divided doses than at once. But by means of vomiting, not only is the fomes in the stomach, and bilious colluvies, together with part of the miasma, drawn off in the most expeditious manner, before they pervade the internal parts of the system, but also the propulsion of the eruption to the surface is said to be gently and successfully promoted. Nay, if all the fomes of the disease is settled in the stomach, even the eruption is intirely prevented. But if the colluvies is deeper-seated, affecting the intestines more, and

the belly is either bound, or does not perform its office, or cannot of itself eject the fæces, it is proper, by means of a purgative, to draw it off; for nature has frequently shewn, that after a spontaneous looseness, when the fordes oppressed the *primæ viæ*, and, by irritating the intestinal canal, retarded the eruption, it has often been successfully propelled to the surface. Nor ought we to be afraid of employing a gentle laxative, even in puerperal women, when symptoms of a colluvies in the intestinal canal are present §. Laxatives composed of the salts and manna, if they are not given in a pretty large dose, which I by no means approve of, according to Ludwig do not seem sufficient, and not always to be free of harm ¶. He therefore gives the preference to the freshest oil of sweet almonds, or the gentlest clysters, without stimulants, particularly when the disease is advanced, as it is scarce possible to conceive how sensible the bodies become in the progress of the disease. And I think that this advice is particularly to be attended to in the case of puerperal women, who require being treated with greater mildness and caution. But of the cathartics the milder ones are preferred, as purified whey, either alone or boiled up with tamarinds, cassia-flowers, crystals of tartar, soluble tartar, Glauber's salt, and the like. But, by unanimous consent, emollient injections employed during the whole course of the

disease, to relax and open the belly, are considered as being by far the safest. These, by relaxing the intestines, and allaying or removing the spasms and irritations, also bring about a more expeditious eruption of the pustules, and, when it does take place, cause it to continue and mature. But during the eruption itself, some of the most cautious physicians are of opinion that the costiveness ought to be suffered **, unless some severe symptom require the belly's being opened by means of oil, or a clyster. But when the miliary pustules appear, it is necessary to abstain from cathartics, properly so called, because Allioni, from his experience, affirms, that purging then proves hurtful ††. It is proper, however, to except that case in which very small, pellucid, scarcely conspicuous vesicles appear on the surface, and do not become wider on employing the proper remedies, nor attain their proper height and degree of maturation. In that case it is improper to insist too long on internal remedies of that kind; but, before the strength is exhausted by long illness, when these cutaneous roughnesses are altogether incapable of removing the disease, the fomes ought to be purged from the intestines by means of gentle remedies, as rhubarb, manna, and Glauber's salt, in the mean time not omitting the employment of blisters and other excretions ††. After the exsiccation of the pustules, at the termination of the disease, it is likewise

proper to purge the belly, that the remains of the disease lurking in the system may not cause a relapse, or generate other successions of complaints. With respect, however, to the eruption being impeded, as it is said, by cathartics, the experiments which I have made do not sufficiently confirm it, nor do I know that it is confirmed by the trials of others, nor, to tell the truth, ought it perhaps to be wished for in a disease the peculiar and natural crisis of which consists in a complete eruption taking place on the surface.

* Gasteller, p. 362. † Molinar, p. 34. Vogel, § 141.
 ‡ *De Nov. Feb. Ingress.* || Allioni, l. c. § 190. § Molinar, l. c.
 ¶ § 223. ** Ludwig, § 123. †† L. c.
 ‡‡ Meade, *Monit. et Præc. Med.* sect. 4. p. 14.

437. Blisters in like manner have had a various reception ; hence they are commended by some, and contemned by others *. Allioni neither recommends nor reprobates them, but observed them at one time to be of no service, sometimes prove hurtful, and at other times of some advantage †. Damilani relates, that they generally proved hurtful, as also sinapisms and epispastics, particularly at the beginning of the disease, when the fever was very severe, attended with a contracted pulse, and when the patients were of a slender, sensible, and dry habit of body ; which he also endeavours to confirm by a melancholy instance ‡. Barald also is not favourable to blisters, affirming that if they are not hurtful, they are at

least useless and inefficacious ¶. And he afterwards does not hesitate to assert, that when employed prematurely, they retard the eruption of the pustules, which, however, is denied by Allioni § ; nay, that they even force in the pustules after their appearance ; and he repeatedly mentions this ¶. Nor is it surprising that this happened to Barald, because the miliary disease in his patients was combined with a bilious, and as it were ardent tritæophya, and therefore did not require any stimulus, but rather a check ; as happened in the patients in whom Damilani mentions the blisters not to have turned out well. On which very account, Augustinus was obliged in general to abstain from blisters, frictions, and other stimulants in the miliary disease at Novare, which was of an inflammatory nature **. On the contrary, when the pulse is languid and weak ; the heat mild ; the fluids sluggish and phlegmatic ; the habit soft and lax ; or when a sufficient quantity of blood has not been taken, in one word, when there is occasion to employ exciting and stimulant means, I would pronounce blisters to be very well calculated both to call forth the eruption, when it is slow and imperfect, and to recall it after being forced in, and to remove and prevent the coma, lethargy, cattarrh, and oppression of the lungs, nay, the loosens itself, occasioned by the metastasis of the morbid matter. Hamilton used to employ them very frequently,

and thought so much of their salutary effects, that when one dried up, he caused fresh ones to be applied to other parts ; and with reason, as the miliary eruption which he had to treat, was white, lymphatic, or crystalline, accompanied with a slight fever, and the patients were of a phlegmatic and lax habit, and their strength was reduced to the last degree. The generality adopt the opinion of Hamilton. Ludwig prefers larger blisters to small ones, although applied to different parts, but he requires them being long kept open, and running ††. Some employ them early. Mollinar, when the fluids appear dense and sluggish, and the virus requires being called out, advises the application of them on the fourth or fifth day after bleeding, exactly observing the cautions concerning the employment of blisters, in consequence of long experience, laid down by Baglivi ‡‡. But Freind is of opinion, that we ought not always to adhere to the precepts of Baglivi ||| ; and he is joined in opinion by Petrus De Rotundis §§, a reputable physician of Rome, who first proposed the sparing use of mercury ¶¶, from their having employed them with the greatest advantage sometimes in dry, slender habits, providing revulsion, calling the virus to the surface, and exciting the system, were indicated ; and other respectable physicians testify the same thing. For a matron of a very slender habit of body, and who besides, from having been rickety in her youth, had become crooked, was

attacked with the sporadic miliary disease, attended with slight fever, and a low, irregular, weak, and small pulse. A watery, lymphatic, white eruption, had begun to appear at the proper time, but because it was imperfect, it did not alleviate the disease. The respiration, in particular, continued to be laborious, irregular, anxious, and accompanied with sighing. She had a great propensity to sleep, and sometimes dreamed: but whenever her eyes closed, she started out of sleep, roused by subfultus tendinum, and oppression at the chest. Two blisters were applied to the calves of the legs. Within twenty-four hours after their application all the symptoms disappeared. The pulse became regular, raised, expanded, and stronger; the respiration free, the sleep tranquil, and the subfultus went off; the whole force of the disease being in a manner turned to the calves of the legs. Under the blister, occasioned by the cantharides, was observed a white, thick eschar, black round the margin, gangrenous, and very fetid, which was gradually separated in consequence of a flow, but laudable suppuration taking place, leaving a deep ulcer, which long discharged a great quantity of good, white pus, and was gradually filled with flesh, and covered with a proper cicatrix. Nearly in this manner, by the joint aid of art and nature, did Lucretia Costa, a lady of distinction at Foyence, completely recover from the disease.

* Vogel, l. c. § 141. † L. c. § 147. ‡ L. c.
 p. 115. 116. || L. c. p. 31. § L. c. § same. ¶ P. 35.
 36. 53. 54. ** L. c. †† L. c. § 222. ‡‡ L. c.
 p. 149. ||| *De Febr. Comment.* ix. §§ *De Victu Acu-*
tor. p. 122.

¶¶ See his *Preface*, p. 24. in which an account is given of his having sketched a plan for curing syphilis by rubbing in mercury, which was not followed by salivation. In 1718, this plan was transmitted to Paris, to be sent from thence to the physicians of Montpellier two years after. A physician there published *A new method of curing the venereal disease, by rubbing in mercury, without salivation following.* Sic vos non vobis! &c.

438. Among the medicines, the employment of which is not universally adopted, must be mentioned also some acids *. For it could not fail to happen, but that they must have been rejected by those to whom acidity of the serum or lymph of the blood, or a tendency to it, seems to constitute the principal cause of the disease, as increasing its fomes; while they are highly prized by others, who have conceived to themselves that the miliary virus is of a putrid nature. I have already in some measure shewn (426.) the arguments for and against both opinions. Let us now see what experience, by which alone the truth can be discovered, has established beyond doubt in this controverted case. It is an undeniable fact, that the abettors of the former opinion, Hamilton, Hoffman, and others, have performed several very successful cures of the miliary disease, merely by the employment of absorbents and alkaline remedies;

and that they have had no occasion to repent of the plan they had adopted. Nor were the medicines which Meade employed of a different kind †. Chambon De Monteaux also, without hesitation, has recourse to alkaline or volatile remedies, which he prefers to absorbents and fixed alkalis, namely, the rectified spirit of hartshorn, which Hamilton also sometimes employed, the animal oil of Duppeli mixed with volatile salt, and spiritus Mindereri, which he thinks ought to be sometimes substituted in place of the volatile salts. For, by means of these, he endeavours to prevent the acidity and lentor of the lymph ‡. Likewise Boerhaave, in treating the diseases of puerperal women, among which the miliary one is not uncommon, employed alkaline and antacid remedies, because he supposed that in them acidity was the hurtful agent, whether it proceeded from the milk, or from any other cause ||. If we are to abide by experience, therefore, I really do not see for what reason we should be so studious to inculcate the employment of acids in this case. Among the abettors of the latter opinion no one can deny a place to Allioni. He, however, actuated more by the love of truth, than of his own opinion, ingenuously relating the result of his experience, does not deny, that, in the first stage of the pustules, the eruption had been retarded by means of acids; and that, even in the second, if

they were employed constantly, and liberally, they likewise occasioned no small injury §. But that he might not appear to forget himself, he adds, in the last place, that by means of acids, particularly the vegetable ones, the miasma is in some measure corrected : by which words he plainly shews how inconsiderable and uncertain he supposed their efficacy to be ¶. I find from daily experience in this disease, how inconsiderable and uncertain their efficacy is, or rather that they possess none at all ; and Molinar experienced the same thing, having never observed them followed by any good effect in the species which is named *malignant* **. The same thing had been already noticed by Hoffman, after Hamilton ; nay, he has openly declared that they prove hurtful. All which facts seem to point out, that the virtue of acids in this case is doubtful, at least with regard to checking and blunting the force of the miasma ; and this more and more confirms our doubts concerning the putrid nature of the disease. I should therefore say, that acids, particularly the vegetable ones, when mild and employed with caution, are calculated for diminishing and checking the effects of the disease, rather than directly opposing its course ; that is to say, that they are indicated when the heat and febrile motion exceed bounds ; when the strength is vigorous ; when the bile is warm and prone to alkalescence ; in a word, when immoderate irrita-

bility of the solids, and the propensity of the fluids to alkalescence, putrefaction, or colliquation, are to be restrained.

* Vogel, § 141. † *Monit. et Præc. Med.* l. c. ‡ *Des Malad. des Femm.* T. i. c. viii. || *Aphor. de Cogn. et Curand. Morb.* § 1331. § L. c. § 145. ¶ L. c. ** L. c. p. 113.

439. Two remarkable medicines, I mean opium and bark, cannot be passed over here without animadversion, different opinions concerning their effects being entertained. With regard to the bark, although it is universally employed in this disease, both as a febrifuge and as an antiseptic, and is highly extolled, it must not be employed, however, promiscuously. In the first stage, when the fever resembles an intermitting one (390.), or is disguised under the appearance of it (401.), it has very frequently been tried to no purpose *. For in that case the fever, although it does intermit, or periodically remit, in the same manner as the *subintrantes*, or *subcontinuae*, yet because it does not arise from the fomes of real intermittents, but from the exanthematic poison, which has already been shewn in its proper place; it is by no means subjected to the febrifuge power of that antidote: for the miliary miasma, as Allioni observes †, is not corrected by the peruvian bark. But if the complaint is combined with real intermitting fever, in that case the intermitting fever with which it is conjoined, to a certainty may be sup-

pressed by the peruvian bark, which never fails to overcome it. Some, however, guard against prematurely having recourse to it, that is, in the first stage of the disease, unless, in consequence of bleeding and diluents having been employed, the state of inflammation and tension, in which the fibres and all the vessels are found, has been corrected †; as the tonic and strengthening property of the medicine would otherwise prove injurious to it. But, when the eruption has taken place, if the intermitting fever still continues, as it generally does when it was really such at the beginning, and is actually combined with the miliary disease, if the bark has not been employed before, we must immediately have recourse to it: or otherwise, during the febrile cold, the eruption becomes depressed, and strikes in; which is attended with imminent hazard (408.), as the author just now quoted laments the death of two stout men having taken place from this cause ||. Sometimes only during the progress of the fever it approaches to the nature of a *subintrans*, having more manifest remissions; so that if it be not really an intermitting fever, it seems to border nearly upon one. Then also the bark has been administered with the greatest success. When a young man, a patient of mine, was affected with the miliary disease, aphthæ appeared upon his tongue and lips, occasioning very severe pain, attended with a perpetual and copious discharge of saliva. Neither the

aphthæ, ptyalism, nor the appearance of the miliary pustules, afforded any relief to the fever. It was every day aggravated towards evening without cold, and, as it were, imperceptibly ; it harassed the patient the whole night with excessive heat, restlessness, and thirst ; but a sweat breaking out in the morning, it remitted in such a manner, as almost to attain a complete state of apyrexia. I prescribed the peruvian bark to him, and the fever was quickly removed, along with all the concomitant symptoms. Meade § affirms something similar, both concerning the removal of the aphthæ and the fever, by means of the bark, adducing the authority and experience of Sydenham. Damilani also, who is otherwise inclined to suspect the efficacy of the bark, does not reject it whenever the fever is either a real intermittent, or putrid remittent, particularly in puerperal women, and when the miliary disease is combined with it ¶. But it will perhaps appear strange, that in the first stage, as I have already said, when it resembles an intermitting fever, it is not only not removed by the bark, but also that the eruption of the pustules was so retarded in the epidemy of Corregio, that it sometimes did not appear until the fortieth or fiftieth day ** ; which delay, had it been owing really to the employment of the bark, and not to the anomalous and peculiar nature of the disease, I should be disposed to think had pro-

bably happened, not through the inefficacy of the remedy, but rather from the nature of the disease itself defying its tonic and strengthening quality. For in the bilious trytæophya, with which the miliary virus was combined, such was the greatness of the pulse, heat, and inflammatory lentor of the blood, and tension of the solids, that there was no occasion for a stimulus. When the violent action of all the functions, therefore, was so much increased by employing the bark, how could the secretion and excretion of the miliary miasma go on? But when the violence of the fever is somewhat broken, and the pulse restored to moderation, but still more if the strength fails, the bark is so far from retarding the eruption, that it rather promotes it; as I have frequently observed; or at least, by means of this remedy, I have brought about a successful termination of the disease. Barald himself, although his mind is not made up as to the effects of the bark, is obliged to grant the same thing, adducing an instance by which he shews, that on giving the bark all the symptoms were allayed, that the strength was improved, and that the miliary pustules were forced out in a favourable manner, namely, two days after its employment had been begun, and on the fifteenth day after the commencement of the disease ††. Gasteller also confesses, that when debility is present the fever is mitigated, and the eruption promoted, by the same remedy ††.

* Damilani, p. 124. Barald, p. 31. † § 188. 210.
 ‡ Allioni, §. 210. || *Id.* § 211. § *Monit. et Prac. Med.*
 sect. iv. *Febr. Miliar.* p. 15. ¶ Pag. 142. ** L. c. p. 31.
 †† Pag. 37. 38. ‡‡ Pag. 363. 364.

440. Opium, as being a very powerful remedy, like others which have a violent effect on the system, ought to be employed with the utmost caution. It is generally suspected in this disease by Allioni; and is said by him to be more frequently productive of a bad than good effect. The presence of the inflammatory diathesis of the blood, or the great tendency of the disease to different kinds of inflammation, which is manifested in various ways, seems to forbid its employment. In the second stage particularly, in which the skin becomes tense, and is affected with a kind of inflammation, while at the same time violent fever is present, and there is too great an afflux of the blood to the head, causing an accumulation there, which takes place as it were in consequence of the resistance and spasm of the skin,—he judges that opium is inadmissible †; and adds, that the convulsions, which sometimes succeed the eruption, were not allayed by that remedy, even when they proceeded, according to him, from irritation of the cutaneous nerves, and that its employment in the complicated species of the complaint, which is generally inflammatory, as also in the case in which the eruption

is deep seated, and does not easily strike out, is absolutely pernicious ‡. As these observations rest on the authority and experience of a very celebrated author, they do not seem by any means to be despised, or neglected; particularly as they have been confirmed by Antonius De Augustinis, who, in the miliary epidemy of the year 1755, already several times mentioned, observes, that when opium was used for removing the watching it proved fatal to his patients ||; while emulsions of poppy-seeds, by means of which he endeavoured to allay the watching, convulsions, delirium, and restlessness, were attended with the greatest advantage. But every one will perceive how far these observations deserve notice, on attentively considering the remarks already delivered elsewhere on this subject, but particularly in the treatise on small-pox (241.). But I remember that the most beneficial effects were produced by a mixture containing a considerable quantity of laudanum, taken in spoonfuls at intervals, by the advice of a distinguished practitioner at Bologna, in the case of a young man, labouring under the miliary disease, combined with a very acute pleurisy, after the eruption had continued for some days, accompanied with distressing watching and delirium, and no relief having been received from a copious sweat and diarrhœa, which were present, the vessels being previously sufficiently emptied, by premising

bleeding. I find also, that Molinar, trusting to repeated experience of its effects, was by no means averse to employing opium; nay, that he had discovered, that neither inflammations were induced by it, nor, if already present, were they aggravated §. But I imagine that he speaks of inflammations in some measure subdued by repeated bleeding and diluent drink; or of those occasioned rather by a stimulus vellicating the nerves, than by the inflammatory diathesis; for to a certainty, opium does not increase these last ones, but, on the contrary, by in some measure lulling the sensibility, and removing the spasm, wonderfully allays them. In the case of puerperal women, prudent physicians very properly abstain from employing opium, that the lochia may not be suppressed. For it possesses the peculiar property of checking evacuations of every kind, excepting the sweat. But if the abdominal viscera, and the uterus, become spasmodically affected, in consequence of which the lochia either flow more sparingly, or stop altogether, Molinar judiciously remarks ¶, that by employing opium the spasms may be removed, and that, in consequence of this, the mouths of the vessels being relaxed, the discharge of blood is sometimes promoted and restored.

* § 231.

† *Ibid.*‡ *Ibid.*

|| L. c. p. 72.

§ Pag. 62. 63.

¶ *Ibid.*

441. I shall say no more concerning the employment of particular remedies, and rather turn my attention to the management of certain symptoms; although, in the former chapters, and especially when the cure of small-pox was explained (275.), I treated the subject at sufficient length, insomuch that it appears almost superfluous to make any more observations on it here. On which account, that I may not disgust the reader with repetitions, I refer him to those passages, satisfied with adding only a few observations here, which apply in a particular manner. I shall therefore consider the striking in of the pustules as the cause of the most severe and fatal symptoms (414.). In this case it is necessary to inquire into its origin (345.). If the eruption has been made to strike in, or is retained by the excessive febrile motion, or by plethora, or the employment of calefacient remedies, or excessive external heat, it must be recalled by refrigerants, nitrous remedies, the renewal of the air, diminishing the bed-cloaths, bleeding, cupping-glasses, and copious and diluent watery drink. But if the admission of the cold air, terror, fainting, and loss of strength, have occasioned their striking in, we ought to employ infusions of elder-flowers, scordium, and carduus benedictus drunk off warm, friction, particularly of the breast, by means of a woollen cloth, well dried, or impregnated with the vapours of amber *, provided its smell can

be suffered without inconvenience, and it is not suspected on account of child-birth, or a particular idiosyncrasy, bathing the body with warm water, moist and warm fomentations, and, when the pulse is weak and small, exciting medicines. Nor must we in this case rest satisfied with *fixed bezoartics* only, namely, the *bezoartic powder* of the London Pharmacopœa, or the powder of *crabs claws*, which are generally recommended, but we ought to try some more efficacious and powerful medicine. Ludwig, therefore, proposes the *alexipharmac essence* of Stahl, the succinated liquor of hartshorn, and camphor itself †, not omitting the application of large, acrid blisters to the calves, neck, and arms, particularly if the patient at the same time is oppressed with drowsiness. Meade recommends the *compound powder of contrayerva root*, and the *confectio cardiaca*, of the same Pharmacopœa ‡. And, when terror, or any other passion, has made the eruption strike in, the patient will receive relief from drinking the *liquor anodynus mineralis* of Hoffman in water, or adding some opium, or laudanum, to the other remedies, which possesses in a wonderful degree the property of allaying the spasms, and drawing the matter to the surface.

* Vogel, l. c. § 141. † L. c. p. 222. ‡ L. c. p. 14.

442. The delirium also is alleviated, or removed, by leeches applied to the temples, and like-

wife by a large wet cupping-glass placed on the occiput ; warm bathing of the feet, or, instead of it, fomentations or epispastics applied to the soles ; and not unfrequently by a blister clapped on the shaved head, to call the matter out. Nor must anodynes, as diacodium, and emulsions of poppy, particularly when the patient is distressed with watching and anxiety, be deprived of their praise. But if convulsions are threatened, or have already appeared, or the patient is distressed with hiccup, besides the succinated liquor of hartshorn, and the anodyne mineral one, and similar sedatives and antispasmodics, a principal rank is held by musk, as it relaxes the spasms, procures tranquil sleep, and very gently promotes the cuticular discharge. But it ought to be of the best kind, and given in a pretty liberal dose, if we desire its proper effect. The pulvis Tunquinenfis * is said to have an admirable effect in this case, on account of the musk which it contains †. When the patients are restless, and about being attacked with convulsions, they are very much relieved by friction applied to the body and limbs ; which Allioni, from his experience of it, recommends ‡. Likewise the whole body, but chiefly the breast ||, or back, ought to be rubbed with woollen cloths, when a discharge of the sweat is to be excited ; or if it has stopped, it requires being recalled. In that case also, it is of great advantage to relax the skin by means of moist and warm fomentations, or to

moisten and soften it with the vapour of warm water. But we shall be able to attain the desired end more certainly, by adding to the pulvis bezoarticus, or that composed of crabs claws, or any other absorbent, a grain of opium §. A great many authors set a high value on camphor, not only as an antiseptic, but also as possessing a wonderful antispasmodic and diaphoretic property. But it does not always answer our expectation; as probably in this disease the vital powers generally exceed bounds. Hence Augustinius ¶ usually abstained from it as being hurtful; and Gasterler ** scarcely found any advantage to be derived from it. I myself have frequently found it prove hurtful, and induce, or accelerate, the convulsions. It must not, therefore, be employed without mature deliberation, and only when the strength is reduced, and the heat small, in order to excite and increase them; nor must we all at once throw in large doses of it, as is usually practised. In such a case Collin attempted to rouse the strength by means of a decoction of chamomile flowers ††. Störck employed the claret of the conserve of cordial flowers. It is usual among us to allow some wine, and nothing in fact more effectually rouses the strength. Likewise whey and wine have an excellent effect. If, along with the loss of strength, the pulse at the same time is perceived to be very small, more powerful exciting reme-

dies, as camphor, blisters, and the like, are not rejected ‡‡. Besides these remedies, other practitioners employ bark, either alone, or added to the root of serpentaria, valerian, or contrayerva |||. But it is improper to check the diarrhœa by means of astringents, unless it almost reduces the strength completely ; for its suppression is frequently followed by death. Hamilton laments that this frequently happened to his patients. He is satisfied with the powder of pearls, or with theriac, or diascordium, and calls forth the fomes of the disease by diaphoretics, that it may not intirely flow to the intestines. Among the sequels which are frequently left by the disease not being sufficiently resolved, a leucophlegmatic tumour often occurs (398.). It is discussed by means of cathartics and diuretics §§. In what manner the other symptoms, or sequels, of the disease, ought to be treated, every one will perceive from the remarks already delivered.

* Pulvis Tunquinenfis. Rec. Moschi optimi gran. xvi. Cinabar. nativ. pp. Coccinel. ana. gr. xxiv. M. f. pulv. dandus pro una dosi, aut in duas dividendus.

† Vogel, § 141. ‡ § 148. || Vogel, l. c. *ib.*
 § *Id. ib.* ¶ L. c. 69. 70. ** Pag. 362. †† L. c. p. 73.
 ‡‡ Collin, p. 74. ||| Gasteller, p. 363. 364.
 §§ Vogel, l. c.

443. I have made the principal observations concerning each of the remedies to be employed, accompanying them with some brief remarks upon particular symptoms. But nothing has been

said concerning the method of treatment, which the combinations of the disease require, as it ought to be varied according to the different species of the disease with which the miliary eruption is combined, or which it resembles. For it is very evident that we must attend to the nature of the feigned, or complicated disease, accommodating the same method of cure to it which that disease would require if it were apart from the miliary complaint; at the same time not altogether neglecting the consideration of the conjoined eruption, so that a mixed cure may be adopted, calculated for each of the complaints. But I cannot, on the whole, sufficiently inculcate the idea of the most simple method of cure being generally preferable to that which is of a compound and more generous kind, and that those patients recover more successfully who do not disturb the operations of nature, relying more on diluents, correctives, and a proper regimen with respect to diet, than on a farrago of drugs, and their various operations; which remark, if it is of advantage in any acute disease, is highly necessary in the exanthematic ones, and particularly in the small-pox and miliary disease, for nature itself manages almost the whole business. After beginning, therefore, in the first stage with bleeding, vomiting, or purging, according as they may be indicated, the remainder of the cure may be principally intrusted to nature, time,

and the regimen with regard to diet. In Italy, we are in the custom of prescribing very copious drink, during the whole course of the disease; and this I find to be the general practice *. It is generally prepared with the decoction of barley, grass, sorrel, succory, scorzonera, or white bread, or of the purest water. There is added to it a little nitre, or orange and citron juice, or oxymel, according as the inflammatory diathesis, or the alkalescent disposition of the fluids, seems to require. But acids must not be employed indiscriminately, and their employment must be regulated by the rule of experience already laid down (438.). Thus the blood is diluted and attempered, and its acrimony blunted and corrected. Gasteller also † employs diluent, refrigerant, and antiseptic drink, and gives the preference to that which at the same time promotes a gentle diaphoresis. But it will be of service only in the absence of the sweating, or when it does not flow profusely; for otherwise diaphoretics would be altogether improper and hurtful. With the view of promoting the diaphoresis, Ludwig does not hesitate to propose a decoction of the roots of the bark, burdock, and sarsaparilla, for the ordinary drink, and probably in the cold countries, in which he lived, there is occasion for a somewhat more active medicine ‡. Among us such a decoction, during the presence of the fever, would scarcely be admitted. In the absence of the fever, there-

fore, as in the species of the disease which is unaccompanied with it, or in the chronic one named *purpura scorbutica*, if it is to be given in any case, it seems to be employed with most advantage. In general, according to Damilani ||, Augustinius §, Ludwig ¶, and others, the drink ought neither to be very warm, nor very cold, but temperate. In the winter-time it ought to incline somewhat to warm, and in the summer-time to cold, or to the temperature of the surrounding air and bed-chamber. In the second stage, Allioni ** never permitted the patients to drink cold water. It may be said that some propose giving the patient for drink abundance not only of cold water, but even of that which is mixed with ice. This is certainly true; but they either employ it only when the eruption is deficient, or in a very warm climate, and in patients accustomed to very cold drink; or we have not such a number of cures performed in this manner as to authorise our following their advice in general. Besides the decoctions lately recommended, are allowed also emulsions of melon-seeds, and the purest whey, according to the patient's taste, or as the physician may think proper.

* Allioni, l. c.	Damilani, l. c.	Barald, l. c.	† L. c.
p. 363.	‡ L. c. § 229.	L. c.	§ L. c.
¶ L. c.	** § 233.		

444. Great care must be taken to avoid excess-

five heat of the bed-chamber, and loading the patient with too many bed-cloaths, and the patient must be well defended from the approach of the air, or sudden cold ; for both excessive heat, even when external, as I have already shewn (395.), and sudden cold, or the admission of the fresh air, prevents the eruption from striking out, or, after it has already appeared, forces it in *. The air and heat of the bed-chamber, therefore, ought to be very temperate. But as, in consequence of the number of by-standers, and the halitus of the patient himself, the air soon becomes vitiated, and rendered unfit for respiration, it ought to be occasionally renovated with the usual cautions. It is safest for the patient to lie in a large bed-chamber, as in it the mass of the air is longer of being contaminated with the effluvia ; and fresh air may be more easily admitted without the patient being sensible of its admission, or feeling cold. De Haën, who in other respects was a very keen advocate for cold air, at a time when he was unbiassed in favour of any particular theory in this disease, condemned the admission of cold air in any manner whatever †. I am aware that there are many who dread no bad consequences either from the admission of cold air, or the changing of the sheets and linens. Gasteller undoubtedly permits both in the treatment of his patients, without any apprehension of the consequence. But others do

not allow it without observing the strictest caution. Hamilton complains of the bad consequences of the cold air || ; but Allioni § altogether forbids the changing of the sheets and linens, particularly in the second stage of the disease; nor is he disposed to allow it even towards the end of the disease, until very late. But the patients are sometimes so covered with sweat, and surrounded with such fetid effluvia, that if they are not removed they again enter the body, or are received into it by inspiration. In that case it is allowable to change them ¶. They must likewise be changed when the wet linens begin to be cold, and occasion a sense of chilliness. For the patients may catch cold, and the eruption strike in, in consequence of it. They may then be changed, but very cautiously, to prevent the approach of cold to the naked body. We must also take care that the sheets or linens may not be too cold or warm; for in the first case they prove hurtful by the cold they occasion, and in the second place by drying and corrugating the skin. Nor is it proper to introduce a warming-pan between the sheets when they are damp, as is commonly done to dry them. For such heat becomes unpleasant, and hurtful to the patient's skin **. It is better, if the linens do not seem to require being changed, to wipe off the sweat with aired cloths, and to insert them also be-

tween the body and the wet linens, that the sweat may be the more easily and longer endured without interruption. It is also very dangerous for the patients, particularly puerperal women, to rise out of bed. For they are very apt to fall into syncope, in consequence of which the striking in of the pustules and fatal convulsions ensue. Hamilton frequently observed very melancholy instances of the bad effects of thus prematurely getting out of bed ††. With respect to the diet, it ought to be weak, particularly when a violent and inflammatory fever is present. It must be of such a kind, however, as to renovate the languid strength. Some practitioners, every third or fourth hour, give their patients about a pint of veal or chicken broth. They allow somewhat more to puerperal women, if the disease is prolonged, or is about to take a turn: for such patients are allowed soups prepared with crumbled bread, given three or four times a-day in small quantity, besides very weak broth given by way of drink. But we must attend to the patient's habits, the country, and season, which may occasion a considerable variation in the diet ††.

* Damilani, l. c.

† Collin, p. 75. 89.

‡ L. c.

|| L. c. c. viii. p. 77. likewise hist. v. p. 109. and hist. xi.

p. 142.

§ L. c. § 225.

¶ Augustinius, l. c.

** Al-

lioni, l. c.

†† Cap. vi. p. 65. 66. 67.

‡‡ Allioni,

§ 234.

*Some particular Remarks on the Miliary Fever
of Puerperal Women.*

445. WE have already remarked (383.), that from the time the miliary eruption began to be attentively observed, the disease was almost universally considered as hostile and peculiar to puerperal women alone, having got the particular name of the *febris miliaris puerperarum*. But I shewed that, when it was observed to attack people of both sexes and of all conditions, as happened in particular after the disease which prevailed at Leipzig, it was considered as common to all, and not different in its essence, causes, or effects, from that of puerperal women, excepting that in them it more frequently appeared attended with greater severity and danger, on account of being combined with child-birth. And, lastly, I noticed that some of the moderns considered the miliary disease as not being essential or primary, but boasted of its being factitious or symptomatic. Nor did they entertain this opinion of that eruption only which attacks puerperal women, but of every other appearing in patients in general; insomuch that the eruption must be considered either as intirely symptomatic, or not at all. But I remarked that Störck, Collin, Tissot, and other very eminent practitioners, had so incontestibly demonstrated

their error, as not a leave a shadow of doubt on the subject.

446. Very lately, however, most of the physicians of Paris, as if tired of the commonly-admitted and true opinion, from an extreme love of novelty, have gradually fallen into the opinion of the miliary eruption of puerperal women differing from the common and epidemic disease, and being therefore symptomatic; as I have lately learned from Chambon De Montaux *, a physician of Paris, and member of the Royal Medical Society, who avowedly condemns them, declaring that he himself, and almost all the provincial physicians, entertain opposite sentiments to them. It is therefore highly probable, that Planchon † and Gasteller ‡, in order to ingratiate themselves with the Royal Medical Society of Paris, who had proposed the question concerning the miliary fever, replied in an express commentary on the subject, that the miliary eruption occurring in puerperal women is not an essential, or primary disease, but a symptomatic one, completely different from the common one, which sometimes prevails epidemically, and constitutes a truly essential disease, as I have already hinted (383.).

* *Malad. des Femm.* T. i. c. viii. p. 470. in 8vo, Paris, 1784.

† *Differt. sur la Fievr. Miliair. des Femm. en couch. et sur leur Traitement*, &c. § 4. ‡ *Traité de la Fievr. Miliair. des Femm. en couch.* p. 31. et seq.

447. But the arguments by which they are led to suppose, that the miliary eruption of puerperal women ought to be disjoined from the miliary disease, must be brought forward, that every person may discover their full force. 1. They say, the miliary fever of puerperal women differs from the common and epidemic one, on account of the latter being *essential*, or primary, and sparing neither age nor sex; while the former attacks puerperal women only, and the wealthy rather than the poor, on account of their peculiar manner of living, the warm chambers, and heating regimen they employ. 2. The essential miliary disease comes on without the eruption being preceded by sweat, and goes through its different stages without being accompanied with it: on the other hand, in puerperal women, the eruption is both preceded by the sweat, and perpetually accompanied with it, inso-much that no eruption takes place when the sweat has not flowed. Hence the eruption is intirely the effect of the sweat. 3. Their cause also is different. In the essential disease, the lymph and nervous fluid are contaminated with a peculiar and unknown principle, while, in the puerperal species, aberration of the milk, retention of the lochia, a colluvies in the *primæ viæ*, and other impurities, occasion the eruption, and all the symptoms. 4. In the former, the ap-

pearance of the eruption alleviates the disease; in the latter, it does not at all diminish the severity of the symptoms. But when the puerperal fever is attended with none, or very slight fever, they then, in order to anticipate the difficulty which awaits them, assert that it must be considered as an addition to the other excretions, by which nature, in puerperal women, endeavours to free the system from the accumulation of vitiated fluids which takes place. 5. In the former, the eruption's retiring in is generally fatal, which is not the case in the puerperal one. Hence, in the former, we must enter on the cure with the utmost caution, that the eruption may not strike in; while in the latter the eruption requires no particular attention. 6. The essential disease is injured by bleeding, while in the symptomatic, or puerperal one, bleeding is necessary and useful, even after the eruption, excepting when a putrid dissolution of the fluids is present. 7. Purging in general is hurtful in the former, on account of forcing the eruption in, and is therefore never admissible, unless towards the end of the disease; but in the latter it is proper, and even necessary, at any period of the disease. 8. In the primary disease no remarkable phenomenon is detected by dissection; but, in the puerperal complaint, the uterus, intestines, lungs, brain, and particularly the abdominal viscera, are found

in various states of inflammation, putrefaction, and gangrene *.

* Gasteller, l. c. p. 31. *et seq.*

448. Although these arguments, which are advanced with a great shew of truth, may at first sight be sufficient to persuade such as rest satisfied rather with the mere authority of celebrated writers, than the force of their reasoning; those who are accustomed to closer investigation, and earnestly pursue the truth, will probably not be disposed to be influenced by them. For some things are admitted which are intirely false; and others which are doubtful; some are exaggerated; some taken for granted, or at least not defined with sufficient accuracy, as I hope to be able without difficulty to shew, by examining each of them in the order in which they have been advanced. What they allege, therefore, at the outset, seems to signify nothing more than the danger by which every body knows that the sporadic disease differs from the epidemic one. But what has this to do with the question, whether the miliary disease of puerperal women differs in its essence and nature from the other species of the complaint? Whether or not, for instance, does the pleuritis, which is sporadic, cease to be the same complaint on becoming epidemic, or the contrary? They next consider it as a certain and demonstrated fact, that the cause of each of them is different, while that is the very point at

issue ; and it appears, from undoubted observation, as I have already shewn (427.), that neither the heat of the bed-chamber, nor the manner of living, nor calefacients, of themselves are sufficient for occasioning the miliary eruption, unless other causes intervene ; and if ever these at all contribute to the production of the eruption, that they rank as remote causes ; which is not more peculiar to puerperal women than to many others, both rich and poor, as appears at once from the history of this disease. For when puerperal women, as happens occasionally in some epidemics and places, are almost all affected with the miliary disease, who can even shew to a certainty, that every one of them had employed the same method of living, heat of the chamber, and that the rich were therefore more frequently and more severely affected ; while the poor, in consequence of employing a different manner of living, remained, as it were, free of the complaint ? Is parturition, by any peculiar privilege, excluded from other diseases in common to every body ? No person in his sound senses would take upon him to make such an assertion.

449. Besides, what they adduce, in the *second* place, namely, that in the primary disease, both before and after the eruption, there is no sweat, is altogether false and contrary to experience ; as well as the assertion, that in the symptomatic species of puerperal women, copious, profuse,

and almost perpetual sweats are present; and, therefore, that in this respect the one is distinguished from the other. For I have already shewn (390.), that this is in common to both diseases; nor could Gasteller himself deny this in the treatise on the miliary fever * which he published some years ago. Nay, Damilani † considered the sweat as so sure a sign of the eruption about to take place, that, if it is wanting, although the other symptoms are present, he thinks we must not look for the eruption; while, though the other symptoms are wanting, the eruption may be foreseen by the presence of it alone. Nor do I suppose that any person, either from his own observation, or trusting to the authority of writers, can deny that a great tendency to sweating must be considered as one of the most frequent and certain symptoms preceding the appearance of the eruption; insomuch that the argument may be retorted, that the miliary eruption of puerperal women by no means differs from the other miliary eruptions, on this very account, that in each of them, both before and after the eruption, the patients are almost bathed in sweat. Whoever denies the truth of this will change his sentiments on turning his attention to the *miliaris sudatoria* of Picardy, named *la suette*, on account of the perpetual sweats which accompany it ‡.

* *Essai sur la Fievr. Miliair.* a Paris, 1773, p. 86. 265. and throughout in the histories subjoined. † L. c. p. 65. in

note c. ‡ *Vid. Mem. de la Soc. Roy. de Med.* T. ii. p. 46.

450. In the *third* place, they in vain conceive to themselves that the material cause in both diseases is different. What they allege of the milk, lochia, and other excretions, is either merely hypothetical, or rather a kind of combination, than the only and genuine cause of the miliary eruption in puerperal women. For in such patients the lymph and nervous fluid may be contaminated with a peculiar and noxious principle, or poisonous miasma, as it is named, in the same manner as happens in other people labouring under a primary disease, and, moreover, that vitiation may be combined with retention of the milk, lochia, or other depraved fluids, without the disease immediately depending on them. Likewise the serum, lymph, or any other fluid in puerperal women, may become so vitiated as to assume the nature of a poison, or miasma, and occasion the miliary disease. But the difference of their material cause does not appear so plain from that circumstance as they persuade themselves. Be this as it may, it appears to be a certain fact, that the miliary disease is often observed in puerperal women, without the milk or lochia being at all vitiated, or any other impurities observable; while retention and aberration of the milk and lochia, and other depravations of the fluids occur, without the eruption taking place, as repeated experience has shewn. Nor, lastly, when the eruption appears, and acquires a milky

colour, does this white colour afford a certain proof of its arising from the lacteal fluid ; as a whitish milky colour is not unfrequently observed to take place in ripe miliary pustules, independently of parturition, nay, even in men and young people. Add to this, that, whatever be the cause of the miliary disease, the nervous system is not less affected and deranged in puerperal women than in others, if the disease be malignant and febrile, as daily experience demonstrates. From all which it appears, that it is in vain to attempt separating the miliary disease of puerperal women from the other species of the complaint, whether sporadic or epidemic, and that the diversity of their cause is by no means sufficiently manifest.

451. Likewise, what they assert, in the *fourth* place, is generally erroneous, namely, that on the eruption taking place, the primary disease is relieved, while that of puerperal women, on account of its being said to be symptomatic, receives no relief from it. For it does not always happen, that the primary disease, on the eruption taking place, is relieved ; but only the benign species of it, and not the malignant one, which, on the contrary, on the eruption taking place, and after it, continues to rage with great violence ; as has been frequently observed both by myself and others. And the same thing happens in the miliary disease of puerperal women, according as

it is benign or malignant ; although, I must confess that in them it is more frequently malignant, and more dangerous, on account of the combination of symptoms ; and such is the force of truth, that even they cannot deny, that sometimes the miliary disease, even in puerperal women, when it is unattended with fever, or accompanied with but a slight one, contributes in no small degree to purify the body from the excrementitious humours, that is, as I imagine, alleviates the disease. As these symptoms are similar in each disease, and the eruption sometimes alleviates the fever and its symptoms, and sometimes aggravates it, according to the degree of benignity or malignity of the disease, there is no reason for saying that the one differs from the other in its nature and essence. If, therefore, the miliary eruption is not less essential or primary in puerperal women than in others, as in fact appears from ample experience, it follows, that in them the forcing in of the pustules must be considered as equally fatal, or at least attended with as much danger as in others ; nor must it be neglected, as they have erroneously asserted, in the *fifth* place. In proof of which, I call upon Hamilton, Hoffman, Juncker, Allioni, and a great many others, who have frequently observed the most dangerous consequences result from their striking in, unless their place was supplied by a copious discharge of urine, or the flow of the lochia, or a diar-

rhœa, or sweat, or several of these evacuations conjoined, by which the miliary fluid was very seasonably drawn off.

452. What they confidently assert concerning bleeding and purging, in the *sixth* and *seventh* places, to confirm the alleged danger, deserves no credit. For, in both cases, either the letting of blood, or purging the belly, is hurtful, unless one or other is indicated by the symptoms which are present; as I have again and again shewn in different parts of this work, and particularly in par. 432. 433. 434. Nay, in the epidemic miliary disease, symptoms indicating both bleeding and purging are frequently found, as Allioni, Augustinus, and Barald, in particular, have frequently observed. On the other hand, according to Hamilton, they seldom occurred in puerperal women, and only when pleurisy, suffocation, or some other symptom was present. It will depend upon circumstances, therefore, both in the common miliary disease, and in the puerperal one, whether bleeding or purging will be proper, or neither of them. But if it is ever expedient in the puerperal miliary disease to let blood even a second time, and that too while the eruption is going on, or to purge the belly at any time, it is not necessary on account of the disease itself, but chiefly because it is generally combined with retention of the lochia, aberration of the milk, plethora, and inflammation of the uterus, intestines,

lungs, brain, and other viscera, or with a gastric or bilious colluvies. And as it often happens that the complaints with which the miliary disease in puerperal women is associated, are so urgent as to particularly require being speedily and powerfully opposed, it is to be understood in this sense only, that the miliary eruption may in the mean time be neglected, not omitting, on account of it, the remedies which seem calculated for removing the former, as bleeding or purging. Nor is this peculiar to the miliary disease which affects puerperal women; as the very same thing may happen in any other complicated species of the miliary disease (432.).

453. The *last* difference which is adduced from dissection, rather demonstrates the effects of the diseases with which the miliary eruption in puerperal women was combined, than a difference of nature between it and the primary complaint. For similar appearances are likewise discovered, unconnected with parturition in the primary disease, varying according to the degree and diversity of the combination. To pass over the observations of others, I shall adduce, in confirmation of the fact, only two dissections which I find recorded by Gasteller. Laurence Duchene, twenty-five years of age, died of the primary miliary disease. On dissection, the left lobe of the lungs appeared full of black thick blood, which had also filled the whole cellular membrane*. In the same year, namely,

1771, Sig. Tas De Grain, a clergyman of Amilly, upwards of twenty-eight years of age, died within four or five days, in consequence of a very malignant miliary disease under which he laboured. The dissection of the dead body discovered some slight collections of blood within the head, and some slight inflammations here and there in the intestines, but shewed that the lungs were more severely affected; in particular, the left lobe was filled with black coagulated blood, which was also everywhere effused into the cellular membrane. The left auricle and sinus of the heart were filled with a polypous concretion, which probably might have been occasioned by the patient's death †. Nor is the diversity of effects found in the dead bodies of puerperal women so great as those on the opposite side of the question would make it appear. For Hamilton dissected the body of a puerperal woman, who had died of this disease, and discovered no morbid appearance, excepting a polypous concretion in the cavities of the heart ‡. Likewise Bianchi, Professor of Anatomy at Turin, mentioned to Allioni his having once found the uterus somewhere inflamed in the bodies of puerperal women, but that the real cause of the patient's death had generally escaped his observation ||. But to return to the combination lately mentioned, Planchon also is obliged to admit it §,

although he generally makes a distinction between the miliary disease of puerperal women and the common species of the complaint. His words are : “ I am willing to grant that a combination of the causes of each disease may occasion a very great resemblance between them, nay, may make them appear to be the very same disease, which requires being particularly attended to, that the necessary cautions may be employed for the proper treatment of the complaint.” And again, a little after, he confesses, that in consequence of this, writers had been led to believe that both diseases were one and the same ¶ ; and, lastly, he grants, that whatever in fact be the general cause of the miliary disease, the symptoms are almost the same in puerperal women as in others. The only doubt which remains on his mind is, that the miliary disease is frequently observed in puerperal women, while the complaint in the mean time does not prevail epidemically **. Hence he infers, that in puerperal women it arises from some peculiar fluid. But had he attended to the most usual division of the complaint into sporadic and epidemic, as most other exanthematic diseases are divided, it would without doubt have removed every scruple on the subject.

* *Essai sur la Fievr. Miliar. Observ. Traisicm.* p. 232. † L. c. *Observ. Quatriem.* p. 239. ‡ *De Febr. Miliar.* c. vi. p. 67.
 || Allioni, l. c. c. viii. § 138. § L. c. § 7. ¶ *Id. ib.* § 8.

** *Ibid.*

454. As the miliary disease of puerperal women, therefore, does not differ from that which attacks other people, and both of them are of the same nature, and originate in the same manner, it follows that the same method of cure is applicable to both. Hence, when I described the cure of this eruption, I detailed it in such a manner as to comprehend also that which is calculated for removing the miliary disease of puerperal women. It would therefore be superfluous in this place to repeat its particular treatment, and thus do the work over again. But if any difference occasionally takes place, it will intirely depend on the circumstance of its being combined with parturition, and preceding gestation. The physician ought principally to attend to the lochial discharge; for if it is stopped, or diminished, it is necessary to employ bleeding, sometimes even repeated; and the uterine region ought to be relaxed, by means of emollient fomentations; and the different passages require to be opened by means of gentle aperients, that the lochia may be recalled, or occasionally promoted. And nearly the same remedies may be employed which have been already recommended in the milk-fever of puerperal women, or in the puerperal fever of the moderns. Likewise, if the *primæ viæ* abound with a putrid colluvies, it must be gently ejected by means of injections or ca-

thartics. Both for supporting and restoring the flow of the lochia, if it is deficient, and for opening the belly, which are two of the most important objects, the physicians of Germany consider the balsamic pills of Becher, Stahl, or Hoffman, as being the best calculated, and prescribe twelve or fifteen grains of them to be taken for some days in the evening *. For they are of opinion, that by means of them the lochial discharge is promoted, or a diarrhœa excited, which not only carries off the fordes of the intestines, but also in some measure may supply their place. But when somewhat more acute fever, or the presence, or fear, of an inflammatory diathesis, forbid the employment of these pills, the repetition of the injections, oil of sweet almonds, the mildest neutral salts, and cassia-flowers, in divided doses, will completely answer the proposed end. The diet ought to be poor, such as I have already prescribed for puerperal women, but in the progress of the disease it ought to be somewhat more generous, for the evacuations which the patients have sustained require more support.

* Vogel, l. c. § 141.

A REMARK CONCERNING THE PLAGUE.

455. IT is evident that that very cruel depopulator of cities and provinces, commonly called the *plague*, belongs to the exanthematic febrile diseases.

For in it both buboes, and carbuncles, and other eruptions take place on the surface, at one time accompanied with fever, at another time not, and almost constitute its peculiar essence. But such is the force of the contagion in it, that the disease is universally propagated with astonishing rapidity, and almost uniformly proves fatal. I ought to have closed the account of this series of eruptive diseases, with an express chapter on the plague. But as I never happened to have an opportunity of seeing or treating this dreadful scourge to mankind, in my account of it I must have been under the necessity of servilely copying the authors who have written on the subject before me, without being able to add any thing of mine. That I may not, therefore, retrace the same ground, I consider it as better to refer the student to those authors who have expressly written on this shocking disorder. And as some of these authors have committed to writing what came under their own observation, and some have compiled a very complete account of the disease from others, I cannot recommend the perusal of their works too much. Among the former class, the number of which is very considerable, we must make particular mention of Mercurialis *, Cattivacci †, Sydenham ‡, Septali ||, Diemerbroeck §, Hodges ¶, Chicoyneou **, and, among the latest, De Mertens ††. Of the latter class, to pass over the names of others, let those of Muratori ‡‡ and

De Haën ||| suffice, who have not only most carefully collected all that has been observed or written concerning it, but have greatly enriched their account with observations and advices of their own. To these authors, therefore, I earnestly recommend my readers, and hope that they may reap such advantage from the labour and experience of their predecessors, as to be able, should they ever have the misfortune to be called upon, to prove themselves thoroughly provided with the necessary previous information relating to so very important a subject §§.

* *De Pest. an. 1577. Venet.* † *Med. Prat. lib. vi.*
 ‡ *Oper. sect. 2. || De Pest. et Pest. Affect. lib. v. Mediol. 1622.*
 § *De Pest. Neomagi Oper. T. ii.* ¶ *De Pest. Lond. ann. 1665.*
 ** *Relation. de la Pest. de Marseille, Paris, 1720.* †† *Observ.*
Med. de Febr. Putr. de Pest. nonnullisq. aliis Morb. P. ii. c. i.
Hist. Pest. Moscovens ann. 1771. ‡‡ *Del Gov. della Peste e*
delle maniere di guardarsene, Tratt. Diviso in Politico, Med. ed
Ecclesiast. Modena, 1714. Likewise, *Relazioni. della Pest. di*
Marsiglia Publicat. dai Medic. che Hanno Operato in Essa con
Alcun. Osservaz di Ludov. Ant. Muratori, ed altre giunte, &c.
Modena, 1721. ||| *Rat. Med. P. xiv. sect. alter De Pest.*

§§ To this class of diseases probably ought to have been referred, the swellings of the parotid and maxillary glands, commonly called in Italy *Orecchini*, as having many symptoms in common to the exanthematic disease. But, because this has not yet been sufficiently demonstrated by observations, I have judged it as being better to treat of them in the following volume.

END OF VOLUME THIRD.

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